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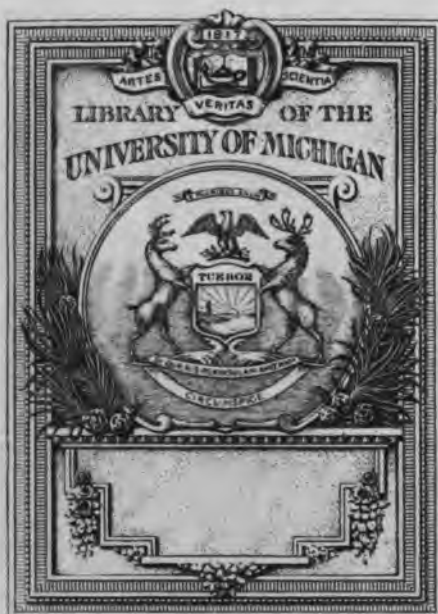
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PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY

HELD AT PHILADELPHIA

FOR

PROMOTING USEFUL KNOWLEDGE.

VOL. XXXIX.

JANUARY TO DECEMBER, 1900.



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1900.

It is requested that all correspondence be addressed

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AMERICAN PHILOSOPHICAL SOCIETY,

104 SOUTH FIFTH STREET,

PHILADELPHIA, U. S. A.

Members will please communicate to the Secretaries any inaccuracy in name or address as given on the wrapper of this number.

It is requested that the receipt of this number of the Proceedings be acknowledged to the Secretaries.

Members who have not as yet sent their photographs to the Society will confer a favor by so doing ; cabinet size preferred.

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OBITUARY NOTICES.

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OBITUARY NOTICES OF MEMBERS DECEASED.

HENRY HARTSHORNE.—During the decade which closes the nineteenth century there have passed away from our membership alone, to be enrolled among the vast majority, no less than two hundred and eighteen of those whose labors in search of truth and the dissemination of useful knowledge among our fellow-men had rendered them famous in our own or in foreign lands, and whose qualities had endeared many of them individually to those among us who still mourn their loss and feel all the more keenly the burden which they were wont to share with us. Of these men so distinguished in every branch of thought—philosophy, theology, law, medicine, natural science, physics, astronomy, history, archæology, literature, poetry, painting and all the other useful arts and sciences applied for the promotion of the comfort of life and the well-being of the human race—it is not my purpose to-night to speak: nor of the wonderful effect of their labors on the progress of human thought, on our acquaintance with the world in which we dwell, the history of those who have gone before us, our social and civic relations with each other, or even the evolution of a higher manhood. But among these men of higher purpose I would call attention especially to our own personal losses among the resident members of our Society, numbering no less than ninety-eight, whose presence and aid we so sadly miss, as well as that of many others among the non-residents whose more or less frequent visits and communications rendered them almost as well known in this Hall as the resident members. And yet again among these men distinguished as they were in their various avocations, literary, scientific, social or economic, I would especially call to mind those whom I may in a larger sense call our Educators, whether in the lines of original investigation or in those of collaboration and utilization of others' labors or in those of public instruction, whether as lecturers, teachers or writers. Among these the names of Leidy, Le Conte, Horn, Agnew, Genth, Rogers, Furness, Wormley, Pancoast, Gregory, Cope, Traill Green, G. W. Biddle, Sartain, Childs, Harrison Allen, Goodell, Ashhurst, McCosh, Cattell, Rhoads, Coppée, Ruschenberger, Ryder, Keating, Maisch, Parvin, Pepper, Brinton, Kendall and others will doubtless present themselves to your minds. Among these, and as one worthy to be ranked among the foremost,

though his inherent gentleness and modesty, as well as his absence during the latter years of his life, caused him to be less known at our meetings than others, I would place the subject of this obituary notice.

Henry Hartshorne, born March 16, 1823, was the third son of Dr. Joseph Hartshorne, a distinguished physician and surgeon, one of the leading and most successful practitioners of his day—a man of firm character and sturdy common sense, of short thick-set frame supported on somewhat club feet, whose earnestness and honesty impressed every one at first glance. Active and vigorous in mind and body; a rigid follower of the older school, in whose practice blood-letting, purging and low diet had such large part, and yet of reading, culture and broad views sufficient to seize and adopt advances as they were made in therapeutics and science, he gave to his children the best education in accordance with his times and principles which could be had. No time or expense was begrudged in fitting them to take an active, leading and useful part in the great battle of life. In all this he was ably seconded by his lovely wife, Anna, the daughter of Mr. Isaac Bonsall, a real estate lawyer and conveyancer, well known and highly respected. She was a motherly woman of fine intellectual ability and cultivation, and a charming hostess. The family circle was large and agreeable; and under such circumstances were reared men destined to play no small part in their various professions. Henry's eldest brother died early; the second was Edward; Isaac, a younger brother, settled early in life in Western Maryland at Sandy Springs, devoting himself to agricultural pursuits. His brother Edward, after long training at home and abroad, settled in Philadelphia and achieved prominence as a surgeon and oculist and as editor of *The Medical Examiner*, as well as author of many and useful pamphlets and other publications; while his youngest brother Charles was for many years Vice-President and President of the Lehigh Valley Railroad Company, an honored, trusted and useful official.

Henry was educated at Haverford School, now Haverford College, graduating there in 1839; and studied medicine, in accordance rather with his father's wishes than his own desires, at the University of Pennsylvania, graduating in 1845. I may mention that he also received from the latter the degree of A.M. in 1860 and LL.D. in 1884—well-deserved tributes to his merit. He was Resident Physician at the Pennsylvania Hospital until 1848, when he com-

menced the practice of his profession, living at first on Callowhill near Twelfth street ; after the decease of his father, at the residence of the latter on Arch below Tenth, and subsequently moving to Arch below Fifteenth. His literary, poetic and artistic tendencies were such, however, as to direct him rather into other fields than those of the general practitioner ; he saw enough of these to broaden and ripen his judgment and make valuable his many writings without wasting his force on the mere routine of his profession. He thus early became a teacher rather than a mere practitioner, laboring with voice and pen for the attainment of the high ideals of good for his fellow-men which always inspired him.

Among his professional activities, however, should be noted his services during the epidemics of cholera in Philadelphia in 1849 and Columbia, Pa., in 1854, his observations, reflections and studies resulting in his work on the subject published in 1866 ; also, his highly valued services during the civil war as surgeon at two of our Government hospitals in this city, and also as volunteer at Gettysburg, after the battle, where I well remember how we greeted his useful, cheerful aid in bringing order out of the chaos into which everything was thrown by the sudden demands for housing and care of more than 20,000 wounded and sick men and prisoners of war.

In 1849 he married Mary E., the daughter of Jeremiah Brown, Esq., of Philadelphia, a lady of great refinement and culture, but unfortunately of rather feeble physical health, the assiduous care of which taxed all the best qualities of his mind and heart. She was in every way worthy of this devotion : and their union was a very happy one, though care and thought for her essentially modified the activities which might otherwise have absorbed his attention. Yet these actually were such as showed him to be no mere ordinary man.

He was Professor of Institutes at the Philadelphia College of Medicine in 1853-54 ; Prize Essayist at American Medical Association in 1856 (his essay ably supporting views of the muscular activity of the arteries in maintaining the blood-current) ; wrote numerous articles for medical journals ; lectured at the Franklin Institute on various subjects in 1857-58 ; gave a course of ten lectures on the Natural History of Man, advocating unity of species and origin, as against the views then rising of multiple origin, besides several other courses of lectures. Under these studies and labors

his health suddenly broke down in 1858, when with his wife he went to Europe and passed a year in travel, going also to Egypt and ascending the Nile to Thebes. On his return in the autumn of 1859, he became Professor of Practice of Medicine in the Medical Department of Pennsylvania College, succeeding the brilliant Dr. Alfred Stillé, who was then elected to the University of Pennsylvania. But owing to the outbreak of the War of Rebellion in 1861, which cut off the supply of Southern students, he in common with the other members of the Faculty withdrew. He was Attending Physician to the Protestant Episcopal Hospital, 1860-62; to the Magdalen Asylum, 1849-64, and Consulting Physician to the Women's Hospital, 1868-76. He was also elected, after a *concours* with two competitors, Professor of Anatomy, Physiology and Natural History at the Philadelphia Central High School in 1862; Professor of Physiology and Hygiene at Pennsylvania College of Dental Surgery in 1866; Professor of Diseases of Children, afterward of Physiology and Hygiene and of Diseases of Children at Women's Medical College, 1867-76. He also became Professor of Organic Science and Philosophy at his Alma Mater, Haverford College, in 1868, leaving the High School and Dental College, but retaining his University and Women's College appointments for eight years more. He was also editor of *The Friends' Review*, a religious journal of a high order, from 1873-76, and again from 1881 to 1893. He was also in 1872-73, for a few months, Professor of Natural Science at Girard College. But in the autumn of 1876 he resigned all of his Philadelphia appointments to become the President of Howland School, Union Springs, N. Y., an institution for the higher education of women (a cause which enlisted his deepest sympathies), striving to do for it what Arnold did for Rugby.

The Howland School, however, was not a success, owing to insufficiency of an endowment fund, so that it was closed by the trustees in 1878; when Prof. Hartshorne returned to Philadelphia, settling in Germantown and opening a family school for girls, and continuing the work begun at Howland School. He was reappointed to the chair of Philosophy at Haverford in 1887, but resigned soon after on account of inconvenience in the conditions of fulfilling his appointment.

Besides the above, he was Recorder of the Biological and Microscopical Department of the Academy of Natural Sciences in

1857-58, Dr. Leidy being then its Director; Secretary of Pennsylvania State Medical Society in 1858; Secretary of Section B of the American Association of Science in 1870; one of the founders of the American Public Health Association in 1872, and its Vice-President in 1875-76; member of the College of Physicians, of the Philadelphia Clinical Society, Contemporary Club, Science and Art Club, Browning Society, etc., etc.

He became a member of the American Philosophical Society in 1863, and contributed at least five papers to its PROCEEDINGS; among them one on *Organic Physics*, in 1872, very remarkable for its close reasoning and advanced thought, and another on *Some Disputed Points in Physiological Optics*, explaining complementary color spectra by interference, rather than by fatigue; also paper on *Extuition and Intuition*, approved by Dr. McCosh.

In addition to all these varied activities he was a prolific writer and worker in the various fields of philanthropy, physiology, hygiene, literature, botany, natural science, medicine, theology and pure philosophy, as a glance at his appended bibliography will show. He followed closely inductive methods of thought and expressed himself always with classic purity, neatness and exactness; as instances may be given his introduction and employment of the term "extuition" as an equally certain and correlated source of our knowledge with "intuition," commended by Dr. McCosh, and of the term "autoplanatic" to describe the mode of dissemination of cholera. In his writings on the latter, and also on quarantine as protective against cholera and yellow fever, he long ago took ground now held by the bacteriologists of to-day. So in his signed contributions to Johnson's *Cyclopædia*, that on Evolution is an elaborate historical account and analysis of the different theories of development, ending with adoption of the theory of Theistic Evolution. (This antedates Huxley's article in *Encyclopædia Britannica*.)

So again we find him emphatically among the leaders and pioneers in the work of *Higher Education for Women and Co-education of the Sexes*; while his bold and caustic criticism on the modern treatment of pneumonia and other acute diseases, as read before the College of Physicians and published in their *Transactions* in 1888, shows that he was not afraid or ashamed to speak the whole truth when needful.

Yet with all his power of logic, wit, raillery and pungent, poig-

nant repartee and playful irony, he was never a controversialist. No one ever succeeded in drawing him into a personal dispute, and his charity was of the nature that "thinketh no evil." So it may well be said of him that among all his writings "*nihil tetigit quod non ornavit*," and that "dying he left no line he need wish to blot."

From Dr. James Darrach's masterly and excellent biographical sketch of Dr. Hartshorne, read before the College of Physicians, June 2, 1897, and from memoranda also most kindly furnished by his daughter, who accompanied her father to Japan, I have drawn up this account of our late friend, and to Miss Hartshorne I am also largely indebted for the approximately complete bibliography which follows.

His poems, while not marked by lofty flights of ambition, excel in purity of thought and elegance of diction. They have a flavor all their own, and hence will find fullest appreciation among kindred minds and spirits, especially those who may know what the higher school of Quakerism stands for. It is pleasant to think that among these appreciative minds, as shown by their letters to him, were such different men and accomplished critics as John G. Whittier, E. C. Stedman and Oliver Wendell Holmes.

His most useful works, and I may add profitable in a pecuniary sense, were treatises and compendiums of practical medicine for the use of students and families. Many of these ran through numerous editions, some of them having also been translated into Japanese and proving highly successful among the efforts made to plant Western learning in the far Orient.

Some of his active interests were displayed also in humanitarian questions arising out of slavery and the civil war, etc., such as the Freedmen's Association, the Institute for Colored Youth (of which he was a Manager), the Indian Rights Association (of whose Executive Committee he was for many years a member), and with the Education of Feeble-minded Children as Manager of the Training School at Elwyn, and with those affecting public health, water supply, milk supply, etc., or with education in general, as Manager of Haverford College or of Friends' Select School, or as Overseer of the public schools, Director of Penn Charter School, etc.

Intellectually he always reminded me of a Damascus blade, with his keen, polished wit and imperturbable good humor, bending

gracefully before a blow, but recovering always his form and delivering though playfully replies whose keen logic and aptitude disposed often of an antagonist as effectually and often as unconsciously to the victim as the fabled sword of Saladin could have done.

In 1886 he was called upon to part from his beloved wife. He continued, however, laboring calmly and steadily in the paths of literary labor and beneficent activity as long as his health and strength permitted.

In 1893, accompanied by his youngest daughter, he went to Japan, where he engaged actively in philanthropic work in connection with the prevention of the opium traffic to Formosa, the work of the Women's Christian Temperance Union and the activities organized under the influence of the Society of Friends.

In this work he was enabled to accomplish much, as his fame and position there had been already established as the author of useful works on medicine, translated and published by Keuvada at Tokio, and used as text-books.

In 1894 he returned home for a short time, but soon again departed in 1895 for this far-off field, where he studied the hospitals at Tokio and elsewhere in the empire, among them two for lepers; and practiced considerably among the missionaries, especially in consultation. During two summers at Sapporo, northern Japan, he had much pleasant intercourse with professors and students of the Imperial College of Agriculture, members of the medical society and missionaries and others summering there.

There he lived and there he died, February 10, 1897, peacefully, after a short illness of only two days.

The appreciation of his work by those among whom and for whom he thus labored may be best shown by the following notice which appeared in the *Japan Mail* of February 12, 1897 :

Funeral of Dr. Hartshorne.

The funeral services of the late Henry Hartshorne, M.D., LL.D., of Philadelphia, Penn., U. S. A., were held on Thursday, February 11, in the meeting-house of the Friends' Mission in Mita, Shiba District, Tōkyō. They were marked throughout by a very impressive simplicity and repose, quite in accord with the expressed desire of the deceased. The building was filled with friends, Japanese and foreign, old and young, missionaries and merchants, teachers and students, who united to pay

their last respects to the dead. The commingling of so many different kinds of people gave evidence of the wide circle of the deceased's acquaintanceship and influence.

None knew him but to love him,
Nor named him but to praise.

The exercises were conducted by Mr. Joseph Cosand, of the Friends' Mission, in a very quiet and calm manner which made a deep impression; and consisted of an appropriate intermingling of English and Japanese. Two of Dr. Hartshorne's favorite hymns, "Jesus, Lover of my Soul," and "More Love to Thee, O Christ," and two Japanese hymns were sung. The opening prayer and the benediction were in Japanese by Mr. Mizuno, of the Friends' Mission; the closing prayer was by Rev. A. A. Bennett, of Yokohama, who was a pupil of Dr. Hartshorne in the Philadelphia High School more than thirty years ago. Two excellent addresses were delivered; one, in English, by Rev. B. Chappell, of Tōkyō, and the other, in Japanese, by Rev. G. F. Verbeck, D.D., of Tōkyō. Both emphasized the lovable and deeply spiritual nature of the deceased.

A large number of friends, both Japanese and foreign, attended the interment at Aoyama Cemetery. The body was carried from the hearse to the grave by foreigners and Japanese. The last prayer was offered by the Rev. Julius Soper, D.D., of Tōkyō. When the coffin had been lowered into the grave, it was covered with flowers and evergreens.

Two years ago, after his first visit to Japan, and when a second one was in mind, Dr. Hartshorne wrote a poem expressive of his desire to be buried in Aoyama. He always preferred, however, to think of Aoyama not as "Green Hill," but as "Hill of Love" (Ai-no-yama). This poem reads as follows:—

AOYAMA.

Beyond the crowded city's utmost reach,
Near but to hospital and college halls,
Where on the ear no sound repellant falls,
Only sweet bell-tones, or soft Nippon speech;
Where moss-grown tombstones their weird sermons preach,
With silent liturgies of attendant trees,
Stirred now and then to whispers by a breeze;
Where all things "man is mortal" gently teach:
Are we not farthest there from all the din,
Ofttimes discordant, of the haunts of men,
Where love and joy are fain to enter in,
Yet strife and sorrow come and come again?
When, on this earth, I make my last remove,
Be it to Aoyama, Hill of Love.

H. HARTSHORNE.

*Written in anticipation, Germantown, Pa.,
8 mo. 15, 1895.*

As a writer of pure, excellent English he was unexcelled; as a thinker clear, deep and far-reaching; as an investigator calm, impartial and accurate; as a leader in the advancing thought of his day, he was "primus inter pares, facile princeps"—beloved and respected by all who knew him, an active, amiable, gentlemanly Christian—a true Philosopher. And as such we mourn his loss.

Among papers left by him were found memoranda on *Philological Relation of Roots of Japanese Language with Those of Aryan* for a paper which he intended to prepare for A. P. S.; also others on the *Ethnology of Japanese Islands*. It is to be hoped these will find fitting editors.

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J. CHESTON MORRIS.

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PROCEEDINGS
OF THE
AMERICAN PHILOSOPHICAL SOCIETY
HELD AT PHILADELPHIA FOR PROMOTING USEFUL KNOWLEDGE.

VOL. XXXIX.

JANUARY, 1900.

No. 161.

Stated Meeting, January 5, 1900.

Vice-President SELLERS in the Chair.

Present, 20 members.

Messrs. Daniel Baugh, Leslie W. Miller, Henry Kraemer, Coleman Sellers, Jr., Edwin Swift Balch, Lindley M. Keasbey, Francis Rawle and Marion D. Learned, newly elected members, were presented to the Chair and took their seats in the Society.

Letters acknowledging election and accepting membership were read from Messrs. Edwin Swift Balch, Edward Coles, Coleman Sellers, Jr., Thomas Harvey Dougherty, Henry Kraemer, Alexander Jay Wurts, Albert Matthews, Lindley M. Keasbey, J. Rodman Paul, Daniel Baugh, Leslie W. Miller, Thomas Corwin Mendenhall, Otis Tufton Mason, J. Dundas Lippincott and Robert C. H. Brock.

The list of donations to the Library was presented and thanks were ordered therefor.

The decease of the following members was announced:

Dr. Elliott Coues, of Washington, D. C., at Baltimore, on December 25, 1899, in his 57th year.

Sir James Paget, Bart., of London, on December 30, 1899, aged 85 years.

Mr. A. Radcliffe Grote presented a paper entitled, "The Descent of the Pierids."

The Judges of the annual election for Officers and Council-

lors, held this day between the hours of two and five in the afternoon, reported that the following-named persons had been chosen according to the laws, regulations and ordinances of the Society to the offices for the ensuing year:

President.

Frederick Fraley.

Vice-Presidents.

Coleman Sellers, Isaac J. Wistar, George F. Barker.

Secretaries.

I. Minis Hays, Frederick Prime, Samuel P. Sadtler,
Richard A. Cleemann.

Treasurer.

Horace Jayne.

Curators.

J. Cheston Morris, Benjamin Smith Lyman, Henry Pettit.

Councillors to serve for three years.

George R. Morehouse, Patterson DuBois, Henry C. Trumbull,
C. L. Doolittle.

The Society was adjourned by the presiding officer.

THE DESCENT OF THE PIERIDS.

(Plates I-IV.)

BY A. RADCLIFFE GROTE, A.M.,

Vice-President of the American Association for the Advancement of Science, Etc.

(Read January 5, 1900.)

GENERAL WING CHARACTERS OF THE PIERIDS.

A horde of bright butterflies with entire wings, simply marked in gay and contrasting colors: white, yellow, orange, red, brownish and black, rarely with a blue reflection or a lilac shade, but often marbled beneath with lichen green, of the most general distribution, and numbering almost all of the very few species of diurnals counted as injurious to vegetation. The neururation of the

Pierids may be best compared with that of the *Limnadiidæ* among the brush-footed butterflies, but is most clearly more specialized. The cells are closed, but the transverse vein is often degenerate. There are still, sometimes, very small backward spurs, slight remainders of the vanished base of the median system. The cubital cross-vein has left no mark. The fork to the second anal vein of the fore wings at base is very thin and transparent. The trace of the first anal vein has usually disappeared. The upper median branches ascend the radius, in the specializing movement attending the disintegration of the system of the media. The radial branches are reduced at times to three, the usual number is four, and very rarely the five original branchlets are retained on the primary wing. On the hind wings the humeral cell is reduced, often the central slit can with difficulty be discerned, and sometimes the veins appear to be here completely fused and the subcostal to be single. The humeral spur is usually present, but vanishes in specialization. There are two anal veins on the secondaries. These characters show that the Pierids belong to the second division of the diurnals, in which the free and short downwardly curved third anal vein of the fore wings of the *Papilionides* is absent, viz., the *Hesperiades*.

An antecedent specialization has taken place on the hind wings in that the radius is single, or, if we adopt the view that it is furcate at base and that the costal cell is formed by R_1 , two branched. Present specialization seems still to favor the secondaries, as in those *Nymphalids* in which the cell is open on hind wings and closed on primaries, the reverse appears never to happen. But in the *Parnassiidæ* and the Pierids the progressing disintegration of the median system appears more marked now on the primaries, where the upper branches ascend the radius and the cross-vein weakens.

PHYLOGENY.

Not without much trouble have I been able to detach the terminal branch of the *Hesperiades* from what clings, and yet seems not to belong to it, on the lepidopterous tree. From a common pattern with separated veins, the middle branch of the disintegrating median system fading out at length (*in situ*) in both *Blues* and *Skippers*, owing to the shrinkage of the connecting cross-vein, the wings of the *Lycænids* have evidently emerged, losing the gen-

eralized Hesperian number of radial veins in the operation. The principal feature of the Lycænid-Hesperid offshoot is nearly realized by the next departure, that of the Nymphalids, in the "long-fork" of the Charaxinæ. Finally, we find the main branch itself culminating in the Pierids, which, while otherwise agreeing well with the brush-footed butterflies in neurulation, are to-day nearly all relatively more specialized, the radius of the primary wings being usually only four-veined, the upper veinlets of the media tending also to travel up the vein and arise from beyond the cell. From this branch of the Hesperiaes I have tried to disentangle the overlapping Papilionides, with their short, free and downwardly curved third anal vein on the fore wings, the second anal vein showing no thinner basal fork, as it does in the Hesperiaes and most of the rest of the Lepidoptera. Even if, as appears to be Mr. Quail's opinion, I have not succeeded in getting rid of this Papilionid spray altogether, I have at least shown that its supposed issue from the Hesperiaes branch, between the Blues and the Skippers, affords no growing point, the two latter being consecutive groups. And this was my main endeavor, to take *Papilio* out from between *Lycæna* and *Hesperia*.

And now having cleared as well as I am able the branch down to the Skippers or Hesperiaes, let me try to get lower still and find the connection of the Pieri-Hesperiaes with the trunk of the lepidopterous tree, the Tineides. And here I am met by an obstruction, and also a general prepossession out of which this obstruction arises. I will try to deal first with the prevalent assumption, which is, that the diurnals outrank the rest of the Lepidoptera, are more specialized, and that they represent, so to speak, the outcome of the evolution of the order, which has traveled long to produce them. This view is pictorially represented by all the genealogical trees I have seen, and we may take that of Dr. Packard (1895) as an example. Here the butterflies unfold themselves in the left-hand corner, at the top of the page, and the supporting twigs and limbs are supplied by all the moths, arranged more or less after the catalogue sequence, until we get down to the roots, represented by the Tineina and Eriocephalidæ. How it comes, after such a progression, that the pupæ of the diurnals still show Tineid features, as evidenced by Dr. Chapman, how it comes that the wings of butterflies retain generalized structures as I try to prove, seems, and no doubt is, incompatible with this perfect

scheme. Let us first take up the wings of some moths and show by comparison that they may be more specialized than those of the butterflies.

Specialization is shown by the different groups of the diurnals in a variety of ways and directions. It may be said of the Papilionides, that their main advance is in the reduction of the anal veins of hind wings and the hollowing out of the internal margin of the wing, as shown in an extreme degree by *Parnassius*. Now, when we examine the wings of the Saturnians, we see, in such genera as *Rothschildia*, *Samia* and *Callosamia*, the number of anal veins equally reduced to one, the internal margin equally hollowed out. It may be said again of the Pierids, that their main advance is shown by the diminution of the branches of the radius of the fore wings, which from five in number are reduced to four and three. Turning back to *Rothschildia*, *Samia*, *Attacus*, etc., we find the same reduction. It may be said in turn of the Nymphalids, that their main advance is shown by the opening of the discal cell, the more complete disintegration of the median system of neurulation. Again in the same genera of Attacinae, we find the cell even more completely open, the cross-vein vanished, the centre of the wing longitudinally clean from veins, the median system completely divided between and absorbed by the radius and cubitus (see my figures of Saturnian wings: *Beitrag zur Classification der Schmetterlinge*). Thus the wings of the single Attacid genus *Rothschildia* combine in a high degree the main features of the specializations shown separately by three most important groups of the diurnals. The Attacid wing is far more specialized than the wing of any butterfly. Not only this, it has also lost all residual features which are retained by the butterflies. Let us enumerate some of these: The backward spurs, traces of the base of the median system, to the discal cross-vein, present in many butterflies, are lost. All trace of the cubital cross-vein has vanished from the Attacid primary. This is strong in *Papilio* and allies, quite marked in a number of Nymphalid forms, Morphidæ, Limnadidæ, Heliconiidæ. On the hind wings, the humeral cell, formed by the forking of the radius, closed by the residuary vein R_1 , has also gone. This is found, in various stages of completeness, in many butterflies. The humeral spur (precostal spur) of the butterflies has disappeared in the Saturnians, while the frenulum has departed in both groups. If we take the specializations as indicating younger forms, then the

Attacid genera are more modern than the diurnals, which they thus clearly outrank. Now the indications of the base of the median system, the presence of cross-veins, the forking of the radius of hind wings, are primitive or Tineid characters, and the conclusion is here again irresistible, the diurnals are nearer to the Tineid trunk of the lepidopterous tree than the Attacinæ, because they retain more generalized features in the neururation. I think these considerations should divert the general prepossession that the butterflies are the final product of the lepidopterous tree, or that this corresponds in reality with Dr. Packard's plan, which, with all allowances, appears to be still governed by this idea.

The obstruction to proceeding further with the stem of the Hesperiaes arises from that extensive group which Dr. Dyar has discussed under the name Bombycides (Agrotides), *Proc. Bost. Soc. N. H.*, 27, 127-147, 1896. I do not think sufficient attention has been paid to Dr. Dyar's separation of the higher moths into distinct phyletic groups upon the characters offered by the position of the larval tubercles. If these characters hold, and the groups established by Dr. Dyar are separate and monophyletic branches of the lepidopterous tree, an immense stride toward our comprehension of the order will have been made. The neururation offers, in the Sphingides, Saturniades, Bombycides, no exclusive character, nothing to absolutely limit these groups or to satisfactorily distinguish them from the Hesperiaes. These latter are open to the moths generally, but, if Dr. Dyar's characters hold, I can now sweep aside this vast branch of the Bombycides and account for correspondencies by the fact that the branches have the same origin, but an independent and parallel growth. We need not pass through the Bombycides on the way to the root of the Hesperiaes, nor could we very well, seeing they are now about equally specialized. In the same way we may neglect the Sphingides and Saturniades. Arriving in this way at the Tineides, we find in the Tortricidæ a family with partially concealed larvæ, in neururation and wing form having marked affinities with the Skippers. Beyond these are the related Cossidæ, with concealed, grublike larvæ, the neururation generalized in that the median system is complete. Both these families have the thinner basal loop to the second anal vein of primaries in common with other moths. While there may be no positive proof, it seems to me probable that these families of Tinei-

des have been developed from the same phyletic stem which finally produced the Pierids and Hesperiades.

If the alternative conclusion be adopted which I have suggested, that the so-called "precostal spur" is really homologous with the "humeral veins" of the Lachneids, we must seek for the origin of the Hesperiades in common with that branch of Dr. Dyar's Bombycides in which it is developed, and probably simultaneously from antecedent Tineid types. This would seem to weaken the probability, suggested by Sir George Hampson's phylogeny, that they are derived from forms which have not developed the structure, unless we assume the humeral spurs to be characters of convergence. This humeral vein, which I shall call in the progress of this paper the "humeral spur," is single in the Hesperiades, and may be here a survival, others having perhaps disappeared. This survival itself gradually fades away; in *Terias* it is a mere knob, in *Nathalis* it has nearly vanished.

The primitive Hesperiad had probably a wing in which the veins and branches were all separate, the base of the median system more or less fully developed and with the first anal existing. The second median was central. The cubital cross-vein was present. The fork of the second anal was possibly expanded into a longitudinal vein connecting with second anal by a cross-vein. The primitive Papilionid was probably propinquitous, having most features in common, but the third anal was longer and unconnected, and there are indications from the position of the second median that it was not central as in the primitive Hesperiad from the different shape of the discal cell. On the hind wings the primitive Hesperiad would have lost the three outer branches of the radius, but the first would be present, closing the subcostal cell as in the Sphingidæ. On the costal region of primaries the costal vein might have been functional, but it had probably already left the secondaries. Instead there might have been a greater development of humeral spurs.

It will accord best with the paleontological record if we assume an early and comparatively quick evolution for the diurnals, and as in these are included the Papilionides we must finally say a word as to their presumed origin.

I have recorded elsewhere my search for the short downwardly curved third anal vein of the Papilionides' primary wing. Mr. Meyrick having figured it in the Geometridæ, I sought for but

could not verify its existence. Indeed it is quite clear that Mr. Meyrick's figure of the wing of *Venilia macularia* is impossible. For supposing that we could homologize the loop of the second anal with the third anal of the Papilionides, Mr. Meyrick's figure would depict a moth with *four* anal veins to the primary, since both loop and downwardly curved vein are given. It seems as though the fork or loop to the second anal vein must exclude the third anal vein of the Papilionides and should therefore be homologous with it. In the Saturnian genera *Telea* and *Actias* the loop is continued as a short spur. This looks as though the loop might be the remains of a longitudinal third anal vein, which has been joined to the second anal by a cross-vein, while the external portion has afterwards degenerated.

This view is supported by the fact that the prolongations to the pure and simple loop appear in the Tineid families Cossidæ and Psychidæ, but, in either case, the diphyletism of the diurnals is untouched, since we can reach the *Cossidæ* without again meeting the free and downwardly curved third anal vein of the Papilionides. The third anal would have been merely connected with the second in one line and not in the other. At this moment the Papilionides hang in the air and their ancestry is undiscovered. We may suppose them to have been evolved at the same geological period with the Hesperiaes, whose origin we can trace, and that the record has in their case become lost.

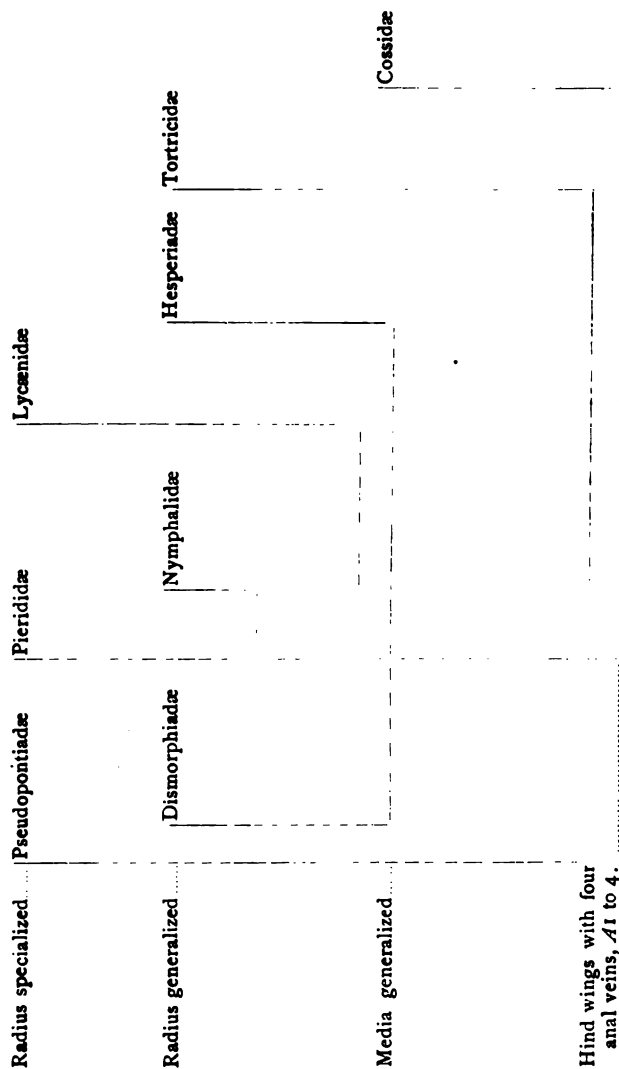
ABERRANT TYPES.

Having thus indicated the course probably taken by the ancestors of the two divisions of the butterflies (Lepidoptera which of old loved light rather than darkness and hence may have become what they are), we can turn to a brief consideration of three dissonant minor groups which hang upon the skirts of the Pierids without any traceable connection. These are the Leptidianæ, the Dismorphianæ and what we must call the Pseudopontiadæ, for, according to a note in the *Entomologist's Record*, Mr. W. F. Kirby has shown that *Pseudopontia* of Plötz antedates by a little *Gonophlebia* of Felder, and Mr. Scudder's statement that we should prefer the latter is thus amended. The two former groups seem closely allied by the extraordinary character of the cubital movement of the middle vein of the median series. The Leptidianæ are pecu-

liar in the absence of the fork to the second anal vein of the fore wings. They are thus comparatively specialized, although the radius retains the five branchlets. The common characters of the two groups with their five-branched radius and elongate wings apparently warrant a phylogenetic association, though in their special features sufficiently distinct. The species are, technically speaking, "long wings," forms in which the primaries have the branches of the radius removed outwardly, sometimes, as here, entirely beyond the cross-vein of the discal cell. The passage of the ordinary broad-winged type into that of the "long wings" I have recorded in the Nymphalids. Since I find no connection here of the two types of wing I have separated the Dismorphiadæ from the Pierids, and exclude them when using in this paper the latter term.

The single species and type of the Pseudopontiadæ may be called, in contradistinction perhaps to almost all other Lepidoptera, a "round wing." In this place it is sufficient to state that the neurulation is extraordinarily specialized. The radius is only three-branched and the median series shows the Pierid movement in specialization, the two upper branches both actually ascending the radius. But on the hind wings three anal veins have been preserved, and the origin of this isolated type must be sought for at a period when this structure prevailed. It may have survived in this instance owing to the necessity for sustaining the spherical shape of the wings. We may now connect this form directly with Tineides which have the same three anal veins on the hind wings present. Consult figure, PROC. AM. PHIL. SOC., xxxvii, Pl. I, Fig. 7.

PROBABLE PHYLOGENY OF THE HESPERIADES.



CLASSIFICATION.

The characters used in the following table are not exclusive, but serve to distinguish the material here discussed :

Hind wings with a single anal vein PAPILIONIDES.

- Hind wings with two anal veins.....HESPERIADES.
 Radius of fore wings 3 to 5 branched; first radial branch
 from above cell; *M*₂ radial.....PIERIDIDÆ.
 Radius of fore wings 5 branched; all radial branches arising
 beyond cell; *M*₂ central or cubital....DISMORPHIADÆ.
 Discal cells not reduced; the cross-vein concave; *M*₂
 cubital on fore wings.....*Dismorphiana*.
 Discal cells reduced; the cross-vein convex; *M*₂ cen-
 tral on fore wings*Leptidiana*.
 Hind wings with three anal veins.....PSEUDOPONTIADÆ.

Family DISMORPHIADÆ.

Wings entire; fore wings with the radius 5 branched, all the short branchlets arising equidistantly beyond the cell. Cells closed; middle branch of the median series central or cubital. I find only doubtful traces of the fork to second anal vein of primaries at base. In the *Dismorphianæ* the male primary is narrow; hind wings sometimes much enlarged inferiorly; no trace of costal cell; middle branch of median series cubital; two anal veins.

Subfamily *Leptidiana* Grote, 1897.

Wings entire, elongate, proportionate. Middle branch of median series central on primaries, cubital on hind wings. Cells closed, reduced to basal third of wings; cross-vein outwardly convex. No trace of fork to second anal on primaries. Secondaries not enlarged, proportionate.

- Outer margin of fore wings acuminate between first and second median branchlets, second and third median propinquitous at base on cross-vein.....*Azalais*.
 Outer margin of fore wings not acuminate; second and third median branchlets separate at base.....*Leptidia*.

Azalais n. g.

Type: *Leucophasia gigantea* Leech, *Ent.*, 23, 46, 1890.

Azalais gigantea.

A more specialized form than *Leptidia*, as shown by the approximation of the second and third median branchlets on hind wings, the two branches arising close together from the point of convexity of the cross-vein. This insect is described and figured in the *Butterflies of China*, p. 484, Pl. 36, Figs. 10, 11, 1893.

Gen. *Leptidia* Bilberg, 1820.

Type : *L. sinapis*.

Syn. *Leucophasia* Stephens, 1827.

Leptidia sinapis.

This common European species differs from *Asalais* by the characters given in the above table. From the neurulation the genus *Leptosia*, with the type given by Scudder, does not belong here. In the *Handbook of British Lepidoptera*, Mr. Meyrick places *Leptidia* in the Pierididæ, between *Euchloe* and *Pieris*.

The wings of the Leptidianæ show apparently no sexual character in size and shape, whereas, in the Dismorphianæ, the males have the primaries narrowed and the secondaries disproportionately widened.

Subfamily *Dismorphianæ*.

This subfamily is closely related to the preceding, but differs by the sexual disproportion of the wings in the males of the genera allied to *Dismorphia*, and by the longer and narrow discal cells. I can find no traces of the fork to the second anal vein of fore wings at base except doubtfully in *Acmepteron*. The Dismorphianæ agree in the cubital position of the middle median branch, but this position is assumed on *both* wings, hence it would be herein a more specialized group than the Leptidianæ. The parallel between these two groups and the Heliconiidæ is shown by the neurulation, in that the radial branches tend also in the latter family to arise beyond the cell. Neither in this group nor the Leptidianæ are there any traces of the cubital cross-vein, hence they are more specialized forms than the Heliconiidæ. It is possible the coincidences indicate that they had a common origin, but against this view the fact of the cubital position of the second median branch, as contrasted with its radial position in the Heliconiidæ and the brush-footed butterflies, will militate. The discal cross-vein is, however, concave on fore wings as in the Heliconians, but since it is convex outwardly in the Leptidianæ, which otherwise so well agree, the character will not have much weight. The broadened hind wings of male *Dismorphia* recall in shape those of *Pseudopontia*.

The Dismorphianæ are remarkable in the cubital position of the middle median branch of fore wings, and this position within the Hesperiadæ is only repeated apparently in certain Giant Skippers, Megathymidæ, which I have had no opportunity to study closely.

A trace of this tendency is, however, visible in the Skipper *Angiades sylvanus*. Here, on the fore wings, this vein, M_2 , still keeping central, has succeeded in sustaining its connection with the cubitus by a true vein; that is, the lower part of the cross-vein between M_2 and M_3 has retained its functional character, while the upper portion, between M_2 and M_1 , has yielded to disintegration and become a scar. Hence M_2 is still fed from the cubitus. On the hind wings vein M_2 has failed to retain the connection, the source of blood supply has given out with the disintegration of the entire cross-vein, and, in consequence, this middle branch of the media has almost entirely vanished from the surface of the wing.

Of the genera of the Dismorphianæ, Mr. Scudder gives the type of *Dismorphia*: *laia*; of *Leptalis*: *astynome*. Additional genera are given by Dr. Dixey in a footnote, *Trans. Ent. Soc. London*, 1896, p. 65. Mr. W. F. Kirby kindly informs that the types of these are: of *Pseudopieris*: *nehemia*; of *Enantia*: *melite*; of *Moschoneura*: *methymna*. Of these types I have been unable to procure specimens of the first and last for study.

Gen. *Leptalis* Dalman, 1823.

Type: *L. astynome*.

Leptalis astynome.

Radius five-branched, all the branches arising beyond the cell; R_1 fusing above with subcostal vein. Cell closed, long and narrow; cross-vein deeply concave, somewhat weakened. First median branchlet arising at junction of cross-vein with radius; M_2 cubital. No trace of fork to second anal. Hind wings with hardly abbreviate somewhat pointed costal, curving toward base of wing; no trace of subcostal cell. First median branchlet has left cross-vein and arises from radius at about one-third of the length from cross-vein to external margin. Cell closed; M_2 cubital.

This genus is, perhaps, less specialized than *Pseudopieris*, in which the discal cell is superiorly retreated, leaving M_1 to spring from radius beyond it. It is more specialized than *Enantia* (to which it stands nearer) and *Acmepteron*, because in these the first median branchlet still remains on the cross-vein.

Leptalis melia.

I describe this since the species has become well known, owing to its having been cited by Fritz Müller as an example of the primi-

tive type of coloration of the genus. It is very close to *astynome*, but represents a slightly more generalized type and must be considered thus a more primitive form. It differs by the minute character that the first median branchlet appears as a continuation of the cross-vein from its upper corner; in *astynome* the fusion of the upper wall of the vein with the radius can be made out. The radial branchlets are a little longer, but R_1 equally fuses with the subcosta. On hind wings M_1 ascends the radius for a shorter distance, lagging thus behind *astynome* and much as in *Enantia*. Since I am not in a position to compare *Dismorphia*, I cannot conclude as to the absolutely right place for *melia* and leave it under *Leptalis*. Color and pattern do not move necessarily with neuration and at times (as in *Cunizza hirlanda*) are much at variance. *Leptalis melia* is a more specialized insect, so far as the neuration is concerned, than those forms of *Dismorphia*, now to be described, in which M_1 still clings to cross-vein before the upper angle of cell. From its position with regard to *astynome*, it might have served as a palette upon which the heliconine pattern of the wing was subsequently traced, but I think not, the differences in neuration being so very slightly to its disadvantage. The costal humeral spur of hind wings is as in *astynome*. *L. melia* appears as a natural specialization of *Enantia milete*.

I will first take up a form which stands a little apart from the others here treated of:

Gen. *Pseudopieris* God. and Salv.

Type: *P. nehemia*.

Pseudopieris nehemia (Boisd.).

Radius five-branched, all the branches arising beyond the cell. R_1 not fusing above with subcostal vein, but free. Discal cells closed, but curiously retreating superiorly on both wings; the cross-vein here falling back toward base of wings and leaving M_1 stranded and fused with radius, at a point opposite M_2 , so that it has made no independent radial progress. On hind wings the humeral spur is straight, truncate, terminating in a Y-shaped projection.

This form differs from all others examined and the genus is undoubtedly valid, while the rest hold more or less together as phases in a progressive common specialization of the neuration.

Gen. *Enantia* Hübner, 1816.

Type: *E. melite*.

Enantia melite (L.).

Radius five-branched, all branches arising beyond cell, but compared with *Leptalis*, the first radial is less advanced, much nearer cross-vein, hence in a more generalized condition. *R*₁, angulate, fusing with subcostal. Cell closed, concave; *M*₁, from cross-vein close to radius; *M*₂, cubital. Hind wings with hardly abbreviate, somewhat pointed costal, turning well to base of wing; no trace of subcostal cell. First median branchlet has left cross-vein and arises from radius at somewhat less than one-third of its length from cross-vein to external margin. Cell closed; *M*₂ cubital.

This form is more generalized than *Leptalis*. Mr. Scudder takes *licinia* as the type of *Enantia*, but, for several reasons, I follow Mr. Kirby here.

Gen. *Acmepteron* God. and Salv.

Type: *A. nemesis*.

Acmepteron nemesis (Latr.).

Radius five-branched, all the branches arising beyond discal cell; *R*₁ fusing with subcostal vein. Cell closed; cross-vein medially concave; *M*₁ arising much before upper angle from cross-vein, hence this genus is more generalized than *Enantia*; *M*₂, cubital; from the concave portion of cross-vein a strong backward spur arises, the relic of base of the median system. Hind wings with humeral spur straight, truncate; cell closed, with *M*₁ arising at upper extremity of cross-vein, hence much generalized.

This genus comes nearest to the primitive type of the subfamily, being more generalized than any examined by me. There is a difference in the degree of sinuosity of the second anal vein, which is much bent in *Acmepteron*, but which I have not been able to precise. In this form also I believe to have detected a very faint linear scar at base of second anal, and which I cannot make out in the other genera of the family. It would occur naturally in a generalized form, but, as I have said elsewhere, the detection of the scar, when faded, is quite difficult and depends on the light in which the tegument is viewed.

CONCLUSIONS ON THE DISMORPHIADÆ.

This small and peculiar family is of the utmost importance as bringing evidence of the solidarity of the Hesperiadæ as classified by me. The generalized features are distinctly those of the Skippers. The five-branched radius has the branches all equidistant, and they distinctly recall, in their position and course, the branches of the Lycænidæ and Hesperidæ. The radial branchlets have moved along; R_4 has crept up R_5 till it becomes a short fork. The cubital position of the second median branchlet shows the probability that the group, exhibiting a character which comes out in the *Megathymidæ*, and which is dormant in the Skippers proper, has left the main stem when this feature was in abeyance. That the forms are now relatively specialized is shown by the faded-out fork to the second anal of primaries. In specialization the branchlets of the radius have moved outwardly, keeping up their equidistant character. This is another link showing that the butterfly wing had originally separate veins and a five-branched radius. Relics of this type are afforded by the Charaxinæ in the Nymphalids. All these butterfly families converge, and the discovery of a comprehensive type would make easy what now must be pieced out with much care and thought. At present the butterflies are all greatly specialized, but the generalized characters are still there in fragments and can be put together. To these all the families contribute their quota. The Papilionides remain excluded, from their peculiarly placed third anal vein of the primary wing. As I have repeatedly said, granting the homology of the fork attached to second anal vein of the Hesperiadæ, with the short, downwardly curved third anal vein of the Papilionides, the diphyletism would be shown in the fact that the third anal has joined the second anal in the one case and remained free in the other. How important this is may be inferred from the fact that the first position is held unchanged to the Tineides through immense series of forms in all conceivable conditions of specialization, while that of the Papilionides is equally tenacious through a small group of genera of very diverse shape and appearance.

Family PIERIDIDÆ.

Wings entire, primaries broad trigonate, secondaries full, rounded, rarely with projections. Radius three to five-branched, cells closed, sometimes partially degenerate, again with slight backward projec-

tions, indicating the vanished base to the median system. The two upper branches of the median system ascending the lower side of the radius in specialization. (The second branch follows suit in *Phulia* as well as in *Pseudopontia*.) M_2 radial. The fork to the second anal vein of primaries is usually, perhaps always, present, rigid, very thin and transparent. Hind wings with the subcostal cell lost, the subcostal vein solid at base; in some species, *e. g.*, *Hebomoia glaucippe*, there is a narrow slit perceivable. I have therefore assumed that all traces of R_1 have generally disappeared and lettered the Subcosta S. alone; the fact that the radius is theoretically furcate at base has no practical value here. The humeral spur (precostal spur) is usually present; in some specialized forms, *e. g.*, *Nathalis*, *Colias*, it has vanished; in some subspecialized genera, *Eurema*, *Zerene*, *Phæbis*, it has left a slight projection. Discal cell of secondaries closed. M_2 radial. Two anal veins. As compared with the Lycæni-Hesperiadæ branch, the neururation shows more complex changes, the relations more netlike.

No characters of the wings, or, in fact, other, have been found by me by which a subdivision of the Pierididæ could be effected. Where there are no gaps there are no categories. The genera stand in various degrees of relationship toward each other; there is a tendency to form lines, culminating in a form with three radial branches, terminating in one with the generalized number five. I have indicated these lines in a former communication to the American Philosophical Society. The phylogenetic lines come out more clearly in the holarctic fauna; as we approach the tropics the increased number of forms render their separation quite difficult. I have no doubt I have often failed to give the true relationship; at least, I have tried to do this, to express by a lower position the fact that the form so placed displays here a neurational feature which a succeeding form has abandoned; this is in principle what is intended by phylogeny.

A rough division into "Whites" and "Yellows" from the prevailing colors of the wings has been attempted. Since these groups cannot be actually limited, they merit no Latin term. As often as I have tried to express their characteristics I have desisted, fearing to dwell upon exclusive marks. In *Pieris* and *Colias*, or *Eurymus*, we have a typical expression of the two associations, which are possibly really natural groups kept apart by general color.

Since the most specialized form I have found belongs to the im-

mediate line of the typical genus *Pieris*, I have commenced with the "Whites;" but since the lines probably really converge, it is not more correct than to begin with the "Yellows."

Typical "Whites."

(Pieridini.)

Gen. *Phulia* H.-S., 1867.

Type: *P. nymphula*.

Phulia nymphula. Staudinger, *Iris*, vii, Taf. i, Fig. 5 (neururation).

Radius three-branched; R_1 and R_2 before the cross-vein, R_3 -5 to costa just before apex. Only the lower median branchlet from cross-vein; M_2 from lower side of radius not far from cross-vein; M_3 a short furcation not far from apex. I cannot make out any trace of the fork to second anal; since this form is extraordinarily specialized by the ascension of the radius by M_2 (paralleled in *Pseudopontia*), its absence might be expected, yet I have so often found traces of it in the Pierididæ where I thought it absent, that it may be finally detected here. Secondaries oblong ovate, humeral spur pronounced, turning to base of wing; first and second median together from upper angle of discal cell. No traces of subcostal cell.

From excellent figures of the neururation of species of *Phulia* given by Dr. Staudinger, *Iris*, vii, Taf. i, *Phulia nympa* Staud. would be slightly more generalized by the propinquity of M_2 to the cross-vein (compare with Fig. 5 of *nymphula*). The species of *Phulia*, as well as the following *Trifurcula*, are Andean, flying at a height of 3000 to 5000 metres, department of La Paz, Bolivia.

Gen. *Trifurcula* Staud.

Type: *T. huanaco*.

Trifurcula huanaco. Staudinger, *Iris*, vii, Taf. i, Fig. 7 (neururation).

Radius four-branched; R_2 advanced to opposite discal cross-vein; R_3 a very short furcation. M_1 , ascending radius; M_2 from cross-vein near to radius, so that the three veins are brought here close together, a feature which Staudinger considers characteristic. A very faint trace of fork to second anal. Hind wings shaped like *Phulia*; humeral spur straight, abbreviate; no trace of subcostal cell; M_2 radial.

More specialized than *Pieris* by the advance of R_2 to a point

opposite cross-vein; more generalized than *Phulia* by the four-branched radius and M_2 still from cross-veins.

Gen. *Mancipium* Hübn., 1806.

Type: *M. brassicæ*.

Mancipium brassicæ. Grote, *Mitt. a. d. Roem. Mus.*, 8, Taf. i, Fig. 4 (neururation).

The validity of this genus seems to depend upon the fact, that in my preparations the short fork, R_3 of *Pieris*, has disappeared. Dr. Chapman informs me that in material examined by him the veinlet still shows itself. *Mancipium* is then a *Pieris* with sometimes three-branched radius. It shows that there exists a tendency in *Pieris* to lose R_3 ; the individuals not reproducing the vein are specialized, those repeating it relatively generalized. The genus stands on a very uncertain footing and should probably be dropped; it can only be used with any separate meaning for a part of the material of the typical species. *Pontia daplidice*, usually mixed with *Pieris*, may owe its similarity, I have ventured to urge, to convergence and belong really to the line Anthocharini. The generic title *Mancipium* covers the *Pieris* of the future, not of the present day, since any *Pieris* discarding the short veinlet R_3 would become thereby equally entitled to be referred to it. From the neururation, I cannot distinguish *Pontia* from *Mancipium*.

Gen. *Pieris* Schrank, 1801.

Type: *P. rapæ*.

Pieris rapæ. Grote, *Mitt. a. d. Roem. Mus.*, 8, Taf. i, Fig. 5 (neururation).

Radius four-branched, R_2 from above cell before cross-vein, R_3 a very short fork before apices. Discal cross-vein shrunken; M_1 from radius, M_2 radial, quite close to upper angle of the cell. Fork to second anal at base distinct. Hind wings with humeral spur turned outwardly; no subcostal cell, but the vein seems to show a cleavage, its remnant. Discal cross-vein also medially deteriorate; M_2 radial.

Pieris napi.

Agrees closely with the preceding, but the second radial is advanced nearer the cross-vein (emulating *Trifurcula*). The fork R_3 is still shorter, quite minute and I should expect it to be occa-

sionally absent, when the specimen would be referable to *Mancipium*. *P. napi* is thus more specialized than *P. rapæ*.

We have thus come somewhat rapidly from local butterflies living on the heights of the Andes to the typical genus of the holarctic Pierididæ. It is clear from the retention of *R*₂ above the discal cell, that the ancestors of *Phulia* have passed through the type of *Pieris*. *Trifurcula* seemingly represents an intermediate but lateral stage, in which *R*₂ is advanced to opposite cross-vein, while *M*₂ has not followed *M*₁ and left the cell. The specializations are therefore probably independent and *Phulia* has not passed through a *Trifurcula* stage.

The genus *Pieris* represents an advanced type of the four-branched radius, on the verge of becoming three-branched, but one in which the second radial has retained its original position above the cell. This type may be used for comparison with the other genera, some of which have evidently attained, through convergence, the same condition; while on the passage of the five-branched to the three-branched form the stage of *Pieris* is more or less nearly repeated in different phyletic lines. For instance, in the "Yellows," *Callidryas* represents *Pieris*, with *R*₂ still in position, but it falls behind in the long *R*₃. *Zerene* abandons the original position of the second radial, which advances to opposite cross-vein and repeats the *Trifurcula* specialization. *Eurymus* (*Colias*) goes still further, *R*₂ passing beyond the cell and the fork of *R*₃ shortening to nearly the condition of *Pieris*. Thus we can probably use the type of *Pieris* with advantage to make the position of the other genera clearer.

Although *Phulia* has made an immense stride beyond *Pieris* toward a greater simplification of the neurulation, as shown in the ascent of the radius by *M*₂, in the short fork of *R*₃₋₅ with *M*₁ (through which we can imagine that the two may come to fall together), yet does *Phulia* remain on the *niveau* of *Pieris* by the retained position of *R*₁ and *R*₂. This fact illustrates the inequality of the specialization, in one and the same organ, of the characters we use as generic. This is a further amplification of that inequality of the specializations between the different stages of the insect to which I ventured to draw attention in 1875. It will then be impossible to "reconcile" generic groups founded on the separate specializations of larva, pupa or imago. Primary, *i. e.*, indifferent characters may be found, by which great groups can be

approximately outlined. But the characters used as generic are subject to constant modification and this from the total surrounding. And for larva, pupa and imago the *entourage* is quite distinct and as for different animals. It is this want of correspondence which shows itself upon occasion, together with the baffling features of convergence which makes the task of the zoölogist in unraveling phylogeny so extremely difficult. The classificatory strain put upon the features of specialization, as for instance by Dr. Karsch's system based upon the larval feet, or Dr. Dyar's foundation of the family Apatelidæ, is greater than they can bear.

My conclusion is, that, there being no homology between the specializations of the different stages in the Lepidoptera, there is also no correspondence.¹ It may be, in certain cases, that all three show marked specializations after their differing fashion, but there exists no necessity that they should do so. One specialization does not arise out of another. The very unusual larva of *Stauropus* produces a moth not so different from other Ptilodonts, as for instance *Heterocampa*. To revert to the genus *Apatela*, from which I drew my earliest deductions in this matter, if the curious clubbed or flattened hairs on the body of the caterpillar of *Jocheæra alni* and *funeralis*, were found instead on the body of the moth, our critic would reproach us with "ignorance" were we to overlook this generic character. A specialization is, however, a generic character, in whatever stage it presents itself, and in overlooking this in the larva our critic is himself at fault. *Jocheæra* cannot be thrown into the common pot of *Apatela* without covering over its peculiar specialization, and to do this is, to use for once a term I dislike, unscientific. A peculiar generic title simply means, that the insect possesses some peculiar feature, in whatever stage, that distinguishes it from its allies. There is, however, no test for the amount of the specialization necessary to support an independent title. To weigh the value of the categories, without prejudice, is the test of a capable classifier. I am not one of Mr. Butler's censors for his paper on *Apatela*, a paper both suggestive and challenging con-

¹ That variations in color in the preceding stages have no influence on the imago seems certain. From the two types of the pupa of *Papilio machaon* I have reared but one of the butterflies. Oscar Schultz separated aberratively colored larvæ of the same species, and they all produced normally marked and colored specimens. Aside from sexual peculiarities, there is then no necessary correspondence between the stages in this respect.

sideration, the more so since his critics do not seem to have been able to point out wherein his conclusions are really faulty. It is that Mr. Butler here mistook characters of convergence in the larvæ of *Apatela* for characters of affinity, and this we can control by a study of both moth and chrysalis. Furthermore, Mr. Butler placed a classificatory strain upon these characters, which they cannot carry, in giving them family value. Their value is generic, however much or little the moths agree; the conclusion is irresistible: we should use the larval specializations as the basis of generic names for the total cycle, if we are entitled so to use the specializations of the imago.

To continue our researches for generalized forms of the direct *Pieris* line, it is clear that we must confine ourselves to those in which the first two radials are in position above the cell, since the departure of R_2 toward the tip of the wing is a further specialization which we can even conceive *Phulia* has yet to undergo.

Gen. *Huphina* Moore.

Type: *H. coronis*.

Huphina coronis.

Radius four-branched, R_1 and R_2 in position above cell, but as compared with *Pieris*, not so advanced along the vein. The neururation agrees with that of *rapæ*, but all the movements are retarded and show thus a preceding stage to that of *Pieris*. The fork of R_3 with R_4 and 5 is longer. The cells are closed; on primaries M_1 ascends the radius for a shorter distance than in *Pieris*. On hind wings the humeral spur is pointed, turned outwardly. An antecedent stage of *Pieris*, which the latter has abandoned. The wings are of a similar texture with transparent veins.

Huphina judith.

Agrees with *coronis*, but slightly more specialized; R_1 and R_2 are nearer together, but R_2 is further from the cross-vein than in *Pieris*. Wings more produced; the outline differing.

We now come to two genera which agree with the *Pieris* plan generally in neururation, but have produced primaries and light, bright colors and represent two stages in specialization wide apart.

Gen. *Tachyris* Wallace, 1867.

Type: *T. nero*.

Tachyris nero.

In the shape of the more pointed primary wings differing from *Pieris* and *Huphina*, the neururation agrees generally and the specialization seems to even exceed the latter. Radius four-branched; *R*₁ and *R*₂ nearer together than in *Huphina*; apical fork even shorter. Cell closed; *M*₁ has ascended radius for about one-fourth of the distance from cell to margin; cross-vein between *M*₂ and radius concave; a slight mesial backward spur. Hind wings with humeral spur turning sharply outwardly.

There are apparently four groups in this genus as established by Wallace, but I have only examined the type as given by Mr. Scudder (*Hist. Sketch*, 274).

Gen. *Hebomoia* Hübner, 1816.

Type: *H. glaucippe*.

Hebomoia glaucippe.

Agrees with *Tachyris*, but much more generalized, and there is a wide gap in the continuity which may be bridged over by forms to which I have not access.

Radius four-branched; *R*₁ and *R*₂ approached, but *R*₂ well removed from cross-vein. Cells closed; *M*₁ has not ascended the radius, as in the entire preceding series, but springs from cross-vein close to upper angle of discal cell. Traces of the base of media as in all generalized forms; two parallel creases can be made out, the upper joining to a slight backward spur at the origin of *M*₂, the lower from a similar point at the centre between *M*₂ and *M*₃. First anal vein a very strong scar; this vein is only developed, however, incompletely in generalized forms. A strong fork to second anal at base. Hind wings with pointed humeral spur turned sharply outwards. Traces of a splitting of *S* at base, thus of a subcostal cell. Wings with transparent but strong veins.

This is the most generalized form which I can refer to the probable direct line of *Pieris*; it is a long way behind, from the fact that *M*₁ lags upon the cross-vein. The line of *Pieris* seems to have connected with the *Aporia* line, which we now take up, and through forms like *Thestylis*, which may almost belong to either.

The neururation of *Hebomoia* is Pierid, not Anthocharid; the ornamentation of the wings above resembles on the other hand that of *Eroessa*, but also *Callosune*. I cannot see in the neururation any sure indication that it is related to the "Yellows." Probably all the generalized forms tend to meet, but I have found no comprehensive type in my material which might stand as ancestral to the whole.

A line which runs parallel with *Pieris*, and which is characterized by the opaque veins, strong wings, the two first radial branches in original position above the cell, the humeral spur of secondaries turned outwardly except in *Mesapia*, where it is truncate, and which possibly may connect with the main line through *Prioneris*, may now be taken up.

Gen. *Mesapia* Gray, 1856.

Type: *M. peloria*.

Mesapia peloria.

A miniature edition of *Aporia*. Veins strong, cells closed. R_2 more separate from R_1 and a very little nearer end of cell; the costal field above cell is wider on primaries, the cell a little more central than in *Aporia*. On secondaries humeral spur straight and truncate. Seems a slightly more specialized form than *Aporia*, with which it generally coincides even to the fraying of the cross-vein superiorly between M_2 and M_3 on fore wings. On the hind wings the veins appear more equidistant, M_1 is further removed from R than in *Aporia*. A rare form from Thibet.

Gen. *Aporia* Hübner, 1816.

Type: *A. cratægi*.

Aporia cratægi. Grote, *Mitt. a. d. Roem. Mus.*, 8, Taf. i, Fig. 6 (neururation).

Wings strong, entire veins opaque, cells closed. Radius four-branched; R_1 and R_2 in original position above cell, but R_2 removed a little outwardly. M_1 from radius, well removed from cross-vein; the branchlet R_3 longer than in *Pieris*. Second anal vein with a slender fork at base. Hind wings with humeral spur abbreviate, turned outwardly. A common European form.

Gen. *Metaporia* Butler, 1870.

Type: *M. agathon*.

Metaporia agathon.

Closely allied to *Aporia*, but the first and second radial branchlets are quite in original position, R_2 further from the cross-vein, hence more generalized than *Aporia*. On hind wings humeral spur straight, truncated.

Dr. Staudinger catalogues under *Metaporia* a number of rare palæarctic forms which I have not been able to study, and which may not be congeneric with *agathon*, which the same author refers to *Pieris*.

Gen. *Prioneris* Wallace, 1867.

Type: *P. thestylis*.

Prioneris thestylis.

Wings ample, entire, veins opaque, tending to subtransparency. Radius four branched; R_1 and R_2 near together, well removed within cell, R_3 a moderate fork. Cells closed; M_1 ascends radius for about one-fourth of distance between cross-vein and external margin. Hind wings with humeral spur pointed, turned to apices of wing. Cross-vein, between M_2 and cubitus, strongly convex with M_3 nearly centrally placed, springing from apex of convexity; traces of a splitting of subcostal vein at base.

This genus is more generalized than *Metaporia* by the two first radial branchlets being less outwardly removed; the first median has ascended radius for a shorter space; on hind wings M_2 is more central, continuous with cross-vein. It is more specialized than *Hobomoia*, by the ascent of radius by M_1 . On both wings M_2 is continuous with upper portion of discal cross-vein, which latter, between M_2 and M_3 , is slightly reduced.

We will now leave *Pieris* and its branch *Aporia* and seek for other parallel series of forms. The following line may not be continuous. I arrange the genera according to their grade of specialization.

Gen. *Elodina* Felder, 1865.

Type: *E. egnatia*.

Elodina egnatia.

Wings entire; radius specialized, three-branched; R_2 has left the discal cell and progressed beyond the cross vein, being intermediate between R_1 and $R_3 + 4 + 5$, the latter a long fork with

M_1 , which ascends the radius to a little less than one-third of the distance between cross-vein and external margin. Cell closed, the vein a little degenerate, concave, M_2 being thrown off from upper corner and apparently fuses with radius. A trace of fork to second anal. Hind wings with humeral spur straight, apparently turning outwardly at tip; subcostal vein solid at base; discal cell closed, cross-vein somewhat reduced.

A highly specialized form, as seen by the three-branched radius, the ascent by M_1 of the radius and the position of M_2 on the primary wing. The following represents a more generalized stage:

Gen. *Phrissura* Butler, 1871.

Type: *P. ægis*.

Phrissura ægis.

Wings entire; radius four-branched; R_2 has not left the cell, but is advanced nearly to cross-vein; R_3 a short furcation out of $R_4 + 5$. Cell closed; M_1 ascends radius; M_2 radial, out of cross-vein which is concave between radius and M_2 . Trace of fork at base of second anal. Hind wing with humeral vein pointed, turning sharply toward apices.

This type very nearly assumes the stage of *Pieris* and stands much lower than *Elodina*. It is a little more specialized than *Pieris*, since R_2 is nearer cross-vein, not quite assuming the position of *Trifurcula*.

Gen. *Ascia* Scopoli, 1777.

Type: *A. monuste*.

Ascia monuste.

This genus assumes almost completely, apparently by convergence, the *Pieris* stage. The four-branched radius shows the relative position of R_1 and R_2 as in *Pieris*. It is very slightly more generalized than *Pieris*, in that M_2 is further from radius, not continuous with the short cross-vein between M_2 and radius. Hind wings with humeral spur pointed, turning sharply, as in *Phrissura*, toward apices, not abbreviate as in *Pieris*.

Gen. *Mylothris* Hübner, 1816.

Type: *M. rhodope*.

Mylothris rhodope.

Wings ample, entire; radius four-branched; R_1 and R_2 in the *Pieris* position; fork of R_3 with $R_4 + 5$ longer than in

Pieris and *Ascia*, which agree, hence a little more generalized. M_1 ascends radius; M_2 in stage of *Ascia*. Trace of fork at base of second anal. Hind wings with humeral vein as in *Ascia*, pointed, turning sharply toward apex of wing.

There is probably a direct descent between *Mylothris* and the much more generalized *Nepheronia*. I interpolate, however, here the intermediate genus *Ava*, which, more generalized than *Mylothris*, probably connects with the *Ascia* line.

Gen. *Ava* de Nicéville, 1898.

Type: *A. affinis* (Voll.).

Ava affinis.

Wings ample, entire; radius four-branched; R_1 and R_2 in the Pierid position above cell; R_3 a rather long fork out of $R_4 + 5$. Cell closed; M_1 ascends radius, perhaps for a little shorter distance than in *Ascia*, than which it would be thus more generalized; M_2 is also a little further from radius than in *Ascia* and the cross-vein between them is concave or depressed, not straightly oblique. Trace of fork to second anal at base. Hind wings with humeral spur pointed, turning sharply toward apex of wing.

This genus is of the *Ascia* type, not of *Pieris*. As it is a little more generalized than *Mylothris*, I bring it in here. This is to be seen by the longer apical fork of R_3 ; by the shorter stem of M_1 ; the cross-vein between M_2 is roundedly concave or depressed, not angulate as in *Mylothris*, and the second median standing a little further off from radius.

Gen. *Nepheronia* Butler, 1870.

Type: *N. poppea* (idotea).

Nepheronia poppea.

Wings ample; external margin a little retreating below apices; color and pattern of *Mylothris*. Radius five-branched, generalized, approaching the generalized form of the Anthocharid line; R_1 and R_2 in original position above cell; R_3 and R_4 near apices out of R_5 , comparatively short furcations. Cell closed; M_1 does not ascend radius, but arises out of cross-vein just before radius; cross-vein angulate between M_1 and M_2 , a little degenerate between M_2 and M_3 . Hind wings with humeral spur curving gently toward apex of wing.

This form is the most generalized of the Pieridini of which I have any material. It stands below *Hebomoia* from the five-branched radius, but shows less residual features in other respects.

We now come to two genera (if really different) which appear to stand between *Hebomoia* and the present *Ascia* line.

Gen. *Callosune* Doubleday, 1847.

Type: *C. danæ*.

Callosune danæ.

Wings entire, form of *Elodina* and this approaches the latter by the shape of the discal cells which are somewhat broadened outwardly and short. Radius four-branched; R_1 and R_2 in original position above cell; R_3 out of $R_4 + 5$, a rather long furcation. Cell closed; M_1 does not ascend radius, but fuses with it at upper angle of discal cell; M_2 radial; cross-vein between M_2 and 3 a little degenerate. Hind wings with humeral spur pointed, a little long and turning sharply toward apex of wing.

This and the following are more generalized forms than *Phrissura*, but appear to connect with the line *Elodina-Phrissura*.

Gen. *Anthopsyche* Wallengren, 1857.

Type: *A. achine*.

Anthopsyche achine.

Differs from *Callosune* only as follows: R_1 and R_2 a little more separate at base; M_1 apparently more freely fused with radius; cross-vein between radius and M_2 a little shorter; on hind wings the cross-vein meets the point of junction of M_1 and M_2 , whereas in *Callosune* it meets M_2 before the junction. By these points of difference it seems the more specialized form.

We now come to several isolated genera which I believe to be unequally related to the *Ascia* line or to some of its members as enumerated by me. No doubt more connection might be supplied by material inaccessible to me. They appear to me to be connected here rather than to the line *Pieris-Aporia*, strong-winged, more specialized forms, which I will afterwards consider before going on to the angled Whites.

Gen. *Melete* Swainson, 1832.

Type: *M. limnoria*.

Melete limnoria.

This is, I believe, the butterfly which Mr. Scudder calls "*Melete lycimnia (limnobia)*," *Hist. Sketch*, 215. I suppose "*limnobia*" to

be a misprint for *limnoria*. As I do not possess the means of fully checking this I thought I would be obliged to omit it at first, but I received the butterfly from Dr. Staudinger labeled "*Daptoneura limnoria*." According to Mr. Scudder, *Daptoneura* falls before *Melete*, with which it is synonymous.

Wings entire; apices produced; hind wings with anal angle roundedly produced; veins transparent. Radius of primaries four-branched; R_1 and R_2 in original position above cell, near together; R_3 out of $R_4 + 5$ a moderate furcation to apex. Cell closed; M_2 ascends radius for a brief extent, about one-fifth of distance from external margin to cross-vein; M_2 nearly central; two slight backward projections from cross-vein between M_2 and radius. Hind wings with humeral spur straight truncated.

This butterfly is more generalized than *Mylothris*, more specialized than *Nepheromia*, which it appears to represent in the American fauna. The smooth wings are saturated with a pale yellow, deepening over the secondaries, the outer margin of which latter is bordered by a shade resembling the chrome yellow colored patches at base of primaries in its allies.

Two isolated genera, of differing grade of specialization, may be here considered. They have frail wings and in literature have been associated with *Leptidia* (*Leucophasia*), although the neuration does not appear to me to warrant the inference.

Gen. *Leptosia* Hübner, 1816.

Type: *L. xiphia*.

Leptosia xiphia.

Wings frail; discal cells developed, broadening outwardly, about two-thirds of length of wing. Radius three-branched; R_1 from above discal cell; R_2 advanced to opposite cross-vein, hence assuming the *Trifurcula* position; R_3 to 5 furcating with M_1 which ascends radius for about one-third of distance from cross-vein to external margin. M_2 from upper corner of discal cell, apparently not quite fusing with radius; cross-vein concave. Hind wings with humeral spur appearing curved outwardly at top.

This genus is highly specialized, nearly on a par with *Elodina*. It is not related at all to *Leptidia*, and has more resemblance to *Neophasia*.

Gen. *Leucidia* Boisduval, 1847.

Type: *L. elvina*.

Leucidia elvina.

Wings frail, short, entire; discal cells wide, taking up about half of the length from base; radius four-branched; *R*₁ in original position; *R*₂ has advanced greatly, arising beyond cross-vein at about one-fourth of distance to external margin; *R*₃ a short furcation with *R*₄ + 5. Discal cell closed; *M*₂ nearly central. Fork to second anal at base apparent. Hind wings with truncate straight humeral spur; *M*₁ out of radius beyond cross-vein; *M*₂ nearly central.

More generalized than *Leptosia* by the four-branched radius and equally unrelated to *Leptidia*. This species is very light yellow with dark apices of four wings.

Leucidia brephos.

This is one of the frailest of small butterflies; pure white, the neururation agreeing absolutely with the type, unless it is that the humeral spur is a little shorter, truncated.

This exhausts my material in the *Ascia* direction and we will now return to more specialized types of the line *Pieris-Aporia*.

Piccarda n. gen.

Type: *P. eucharis* Drury, sp.

Piccarda eucharis.

Wings ample. Radius three-branched; *R*₁ from above cell in original position; *R*₂ a short fork out of *R*₃-5 before apices. Cell closed, vein between *M*₂ and *M*₃ hardly degenerate; *M*₂ radial; *M*₁ from lower side of radius, a little less than one-third of distance between cross-vein and external margin. Second anal with basal fork. Hind wings with hardly abbreviate, pointed, outwardly curved humeral spur; cell closed, vein a little more degenerate than on fore wings; Sc. apparently solid at base.

This genus differs from *Delias*, than which it is more specialized, by the position of *M*₁, which is about one-third removed from discal cell.

Piccarda hyparethe Linné, sp.

Agrees with *eucharis*, the stem of *M*₁ very slightly shorter, hence more generalized. There are probably other Asiatic species to be separated from *Delias* upon the above character.

Gen. *Delias* Hübn., 1816.

Type: *D. egialea*.

Delias egialea.

Radius three-branched; *R*₁ from above cell in original position; *R*₂ a short fork out of *R*₃₋₅ before apices. Cell closed, vein between *M*₂ and *M*₃ somewhat degenerate; *M*₂ radial; *M*₁ from radius immediately beyond cell. Second anal with basal fork. Hind wings with pointed, outwardly curved humeral spur; cell closed, vein somewhat degenerate; Sc. apparently solid at base. Differs from *Piccarda* in the position of *M*₁, which springs from radius quite close to the cross-vein beyond the cell, and hence is the more generalized form.

Gen. *Pereute* H.-S., 1867.

Type: *P. callinice*.

Pereute callinice.

Radius three-branched; *R*₁ only from above the cell, but not in original position, being outwardly removed near to cross-vein; *R*₂ a short sinuate branch anastomosing with *R*₁ just before apices, thus a long supradiscal cell is formed, closed outwardly by *R*₂. Cell closed, vein hardly or not degenerate; *M*₂ central; *M*₁ from radius about one-fourth of distance between cross-vein and external margin, herein resembling *Piccarda*. Second anal vein with thin fork at base. Hind wings with abbreviate humeral spur, not pointed, appearing turned to base of wing; cell closed, vein not degenerate; Sc. apparently solid at base.

This genus, except for the position of costal vein of secondaries, would appear as a lateral specialization of *Delias*. The fusion of *R*₂ with *R*₁ at tip of wing is so extraordinary that I should like to examine more material than is now accessible. Specialization is shown by the outward movement of *R*₁ and *M*₁. On the straighter and rather longer portion of the cross-vein between *M*₂ and radius are too very slight inward projections showing where the vanished base of the median system joined on. In *Piccarda* and *Delias* these projections are barely indicated in the same places by a slight unevenness of the vein. This fact, among others, might show that the three genera are related, since in *Perhybris* there is only one projection in the middle of the shorter discoidal vein between *M*₂ and the radius. In both this form and the more generalized

South American *Archontias* the costal vein of hind wings appears turned in the reverse position from *Delias*, and to the base of the wing. The correspondence, however, in the position of the radial nervules, between *Piccarda*, *Delias* and *Pereute* is very great, but is probably owing in the latter case to convergence. That the first radial does not attain the margin, but fuses with the short second radial, isolates *Pereute* from any other type examined.

Gen. *Archonias* Hübn., 1816.

Type: *A. tereas*.

Syn. *Euterpe* Swainson, 1832.

Archonias tereas.

Wings ample. Radius four-branched; R_1 and R_2 both moved forward, R_2 opposite cross-vein; R_3 straight, a moderate furcation to apex. Cell closed, vein between M_2 and M_3 medially degenerate; M_1 from radius about one-fifth distance to external margin from cross-vein. Hind wings with humeral spur turned backwards to base of wing; Sc. appears to offer a line of cleavage; cell closed, vein between M_2 and M_3 thinner, but nowhere degenerate.

This genus and the following appear to represent the four-branched stage of the preceding *Pereute*.

Gen. *Catasticta* Butler, 1870.

Type: *C. nimbice*.

Catasticta nimbice.

The primaries are apically narrowed and produced, else this type agrees absolutely in neuration with that of *Archonias*, all the difference I note is that the stem of M_1 is a little longer and that the discoidal vein, between M_2 and radius, is quite even on the inner edge, losing the infinitesimal irregularity of *Archonias*. The produced apices seem to necessitate the wider fork between R_3 and R_4-5 , while R_3 is a little curved. How far these very slight characters are generic I cannot say without a larger material to examine.

We come now to a genus which shows affinities to the Anthocharids in the short terminal branches of the radius of fore wings, as well as in the truncated costal vein of secondaries, curving in one instance plainly to base of wing, and in the comparatively straight inner margin and determinate anal angle of the hind pair.

Gen. *Hesperocharis* Felder, 1862.

Type : *H. erota*.

Hesperocharis erota.

Wings ample ; primaries with determinate apices; and straight outer margin. Radius four-branched. R_1 alone in original position above the cell ; R_2 , 3 and 4 + 5 short branchlets near apex. Cell closed. M_1 still from cross-vein. Secondaries with truncated humeral spur, nearly straight. Space between M_2 and M_3 wide, and here the discoidal vein is distinctly angulate superiorly. Anal angle determined.

This genus and its ally fall below the Anthocharids with four-branched radius, in that M_1 has not ascended radius, but springs from cross-vein before upper angle of cell. I have corresponded with Mr. W. F. Kirby on the subject, who informs me that he believes that *Hesperocharis* might well be subdivided. I find one type among my material which I venture to separate without being able to review all the described species described under *Hesperocharis*. *H. graphites* Bates, a very pale lemon-colored species from Mexico, agrees with the type of *Hesperocharis* in shape of wing, and, as far as I can see without preparing the wings, exactly in neuration.

Cunizza n. g.

Type : *C. hirlanda*.

Cunizza hirlanda.

Wings ample ; primaries with rounded apices and outer margin sweeping inwardly. Neuration like *Hesperocharis* ; terminal branchlets of the four-branched radius longer. Secondaries with space between M_2 and M_3 narrower, the cross-vein here shorter and not angulate. Humeral spur truncate, clearly turning to base of wing.

The principal distinction lies in the shape of the wings, which in this respect, color and ornamentation approach the line *Neophasia-Perrhybris*. The neuration is more generalized and entirely different from *Perrhybris pyrrha*, which it seems to copy.

Although, from the pattern, the temptation is to consider *Cunizza* a generalized *Perrhybris*, the markings of the former culminating in the latter, still it is not possible to bring *Cunizza hirlanda* into a relation with *Perrhybris pyrrha*, through the neuration. In *Perrhybris* R_1 and R_2 spring from the above discal cell, the Pierine

position; in *Cunizza*, as in *Hesperocharis*, only R_1 remains in position (as in *Piccarda-Delias*), and R_2 and R_3 are short apical branches, succeeding each other out of $R_4 + 5$, the Anthocharid type. The resemblances between *Cunizza* and *Hesperocharis* are too great to be set down to convergence, unless we had other characters. Again, the humeral spur sets toward the apex in *Perrhybris*, the Pierine position; in *Cunizza* it curves in the opposite direction, and this seems to be its trend in *Hesperocharis*, in which it is truncated. Alone the shape of the wings tend to remove *Cunizza* from the *Hesperocharis* and to bring it over to *Perrhybris*. Independent of the fact that the shape of the wings may be also influenced, the resemblance to *Perrhybris* is by no means exact. The apices are bluntly rounded, produced, in *Cunizza*; in *Perrhybris*, though rounded at apices, they bulge between M_2 and M_3 , just where they retreat in *Cunizza*. The latter differs strongly from *Hesperocharis*, where the apices are squared and the external margin descends straightly.

A broken line, which may connect with the main line of *Pieris*, seems to be indicated by the North American Pine Tree White: *Neophasia menapia* Felder.¹ It is possible, also, that *Neophasia* is a generalized form of *Perrhybris*.

Gen. *Neophasia* Behr, 1869.

Type: *N. menapia*.

Neophasia menapia.

Wings somewhat elongated and shaped as in *Delias*, but frail in texture, and in this character resembling *Leptosia*. The *Pieris* type of neuration is nearly repeated. Radius four-branched; R_2 moved forward, but not attaining cross-vein; the fork of R_3 longer than in *Pieris*. Cell closed, the vein between M_2 and M_3 hardly degenerate; M_2 radial; M_1 ascending radius and leaving it about at one-third of total distance from tip of wing. Secondaries with humeral spur turned inwardly at tip, somewhat obscure and truncate; Sc. appearing undivided at base.

In the fact that the feature of *Pieris* is retained, that both R_1

¹ Consult an article by R. H. Stretch, *Papilio*, 2, pp. 105 *et seq.*, for the habits of this insect. Through an apparent confusion of localities, the German lepidopterist Fruhstorfer thought he recognized, in a Pierid flying about meadows in the vicinity of Washington, D. C., this insect, which inhabits Washington Territory and Idaho. See *Insekten Borse*, Nov. 16, '99, p. 279.

and R_2 spring from radius before cross-vein, *Neophasia* agrees with the more specialized *Perrhybris*.

Gen. *Perrhybris* Hübn., 1816.

Type: *P. pyrrha*.

Perrhybris pyrrha.

Wings ample. Radius three-branched; R_1 and R_2 in original position above the discal cell; cell closed, upper half of vein between M_2 and M_3 shrunk, the shorter vein between M_2 and radius strong and showing a central backward projection, the remnant of the base of the median system. Second anal vein with a slender fork at base. Hind wings with humeral spur strongly turned outwardly; cell closed, vein between M_2 and M_3 somewhat shrunk; a single very slight backward projection on cross-vein between M_2 and radius; subcostal vein apparently solid at base.

The correspondence in the neuration between *Pyrrhybris* and *Mancipium* or *Pontia* may, I think, be due to convergence; otherwise we should have to regard the former as a specialized *Pieris*, of very strange pattern of ornamentation. The stage to which *Pyrrhybris* has attained in the reduction of the radius is anticipatory of *Delias*, but the relationship cannot be considered as direct or ancestral, since the reduction of the media is less advanced in *Delias*. If it were not for the existence of the latter genus, which is clearly ancestral to *Piccarda*, we might regard *Pyrrhybris* as a very early forerunner of the latter. As it is, the line *Piccarda-Delias* has probably emerged from the direct line of *Pieris*, from forms in which the median branches still kept to the cross-vein. The general directions in the reduction of the radial and median branches has been pointed out, and these studies now show the inequality in the rate of specialization between the two systems. In establishing phylogenetic lines we have to reckon with all the factors; in the present paper I am mainly endeavoring to show how the neurational features may be used, as well as the difficulties they present. I hope to have made it plain that their value is very great, but this will come out more clearly the more material is examined and compared.

In pattern of ornamentation *Pyrrhybris* is dimorphic, and the white color of the male above may be considered historically more recent and a specialization. But, in the veining, the sexes are

alike, hence there has been an independent advance in the pattern of the male.

An analagous difficulty with that in the case of *Pyrrhybris* and *Delias* prevents us from considering that *Neophasia* is related to *Cunizza*; since in *Neophasia* the media has progressed and not in *Cunizza*, where *M*₁ still springs from the cross-vein. But it seems possible that *Pyrrhybris* may be looked upon as a specialization of a type similar to *Neophasia*.

The Angled Whites.

(*Anthocharini*.)

Of the group here discussed, all the types, from the three- to the five-branched form, are, if we admit *Pontia*, here extant, and the evolution of the specialized forms may have been relatively modern. The wings have somewhat sharp apices and often a perceptible sexual distinction in shape, the outer margin retreating in the males. The size is moderate, the ground color white, often with orange blotches in the male, the secondaries marbled beneath with lichen green. The specializations of the neururation run parallel with the *Pieris* branch; in one line the second radial branch remains in the original position, in the other it travels up the vein as it does in *Trifurcula*. The cells are closed; the transparent veins seldom degenerate. Humeral spur of secondaries turned toward base of wing or abbreviate and straight, except in *Pontia*.

Gen. *Pontia* Fabr., 1807.

Type: *P. daplidice*.

Pontia daplidice. PROC. AM. PHIL. SOC., xxxvii, Pl. i, Fig. 1 (neururation).

A specialized form, with three-branched radius. I have discussed (*l. c.*, 35) what I believe has been hitherto overlooked, the fact that this butterfly possibly belongs to the present series, and that its resemblance to *Pieris* (than which it is more specialized) is mainly due to convergence. The second radial arises before the cross-vein, hence it would represent a culmination of the direct line from *Euchloe*. The humeral spur of secondaries turns outwardly as in *Pieris*, and this feature may ultimately prove me to be wrong.

With regard to the use of this generic title, Mr. Scudder says: "Curtis, *Brit. Ent.*, Pl. 48, designates (in 1824) *daplidice* as the

type, which must stand, although seldom used in this manner." (*Hist. Sketch*, 255.)

Gen. *Tetracharis* Grote, 1898.

Type: *T. cethura* Feld., sp.

Tetracharis cethura. PROC. AM. PHIL. SOC., xxxvii, Pl. i, Fig. 2 (neururation).

Radius four-branched; second radial branch arising before the cross-vein, although removed outwardly close to it. As this vein is shifting, it may be that this genus belongs on the other line as an antecedent, more generalized form to *Midea*. It is thus not an ideal link between *Euchloe* and *Pontia*, but it comes near to being one.

Gen. *Euchloe* Hübn., 1816.

Type: *E. cardamines*.

Euchloe cardamines. Mitt. a. d. Roemer Mus., 8 Taf. ii, Fig. 9 (neururation).

Radius five-branched; second radial in original position. This is the generalized form of the group, with the second radial branch not removed outwardly toward the cross-vein. Hence it may represent an ancestral form of *Pontia daphidice*, with *Tetracharis* as possibly marking an intermediate four-branched stage.

Euchloe stella.

Radius five-branched; second radial in original position. As compared with *cardamines* it agrees in essentials. It differs in that the fork *R*₄ is a little shorter and that there is a trace of a backward spur on the short and here not oblique cross-vein between *M*₂ and radius. Else I can find no difference and conclude the forms to be congeneric.

We now come to the lateral line, in which the second radial has shifted to the *Trifurcula* position, opposite the cross-vein and then beyond it. I reverse here the order and commence with the most generalized form, comparable with *Euchloe*.

Before going further I wish to say a word upon the humeral spur (precostal spur) of secondaries or its remnant. The truncated humeral spur rises oftenest at right angles. It is then not always easy to say which way it tends, yet it shows an inclination to curve either way in special cases. Whether we can lay a strong determinative value on the directions we now perceive is to me doubtful.

IN PROCEEDINGS OF THE AMERICAN PHILOSOPHICAL SOCIETY, January, 1899, I have suggested that the humeral spur is homologous with the shoulder veins of the Lachneidæ.

Gen. *Anthocharis* Boisd., 1836.

Type: *A. belemia*.

Anthocharis belemia.

Radius five-branched; second radial arising opposite cross-vein in the *Trifurcula* position. *R*₄ a short furcation. *M*₁ from radius about one-third the distance from cross-vein to external margin. Humeral spur of hind wings continuous, pointed, turned to base of wing. Apices of primaries hardly produced and costa but slightly produced; external margin straight; anal angle of secondaries determinate. This genus is an advance on the *Euchloe* type by the attainment of the cross-vein by *R*₂.

Anthocharis belia.

Quite similar to *belemia*; *R*₂ has progressed a little beyond cross-vein, hence more specialized than *belemia*. Shape of wing the same.

Anthocharis ausonides. PROC. AM. PHIL. SOC., xxxvii, Pl. i. Fig. 4 (neurulation).

Quite similar to *belia*, again *R*₂ seems a trifle advanced; *R*₄ still shorter, so that this form is the more specialized of the three. Shape of wing identical.

Gen. *Zegris* Rambur, 1836.

Type: *Z. eupheme*.

Zegris eupheme.

Radius five-branched; second radial well removed to beyond cross-vein, thus abandoning and passing beyond the *Trifurcula* position, which is assumed by *Anthocharis*. *R*₁ takes up nearly the original position of *R*₂. The apical portion of the wing is produced, and here the branches *R*₃, *R*₄, *R*₅ with *M*₁ are brought together; *M*₁ having ascended the radius for nearly half the distance between cross-vein and apices. The costa is strongly depressed; external margin even; anal angle of secondaries more softened than usual.

In the position of *R*₂ this genus is more specialized than *Anthocharis* or *Trifurcula*, but it falls behind the latter in which the

radius is only four branched. I have elsewhere discussed the resemblance between *Trifurcula* and the present line.

Gen. *Midea* H.-S., 1867.

Type: *M. genutia*.

Midea genutia.

Radius four-branched, hence more specialized than *Anthocharis Zegris*, and with the second radial removed outwardly to very slightly beyond cross-vein, thus belonging to this series. Costa not depressed; apices acuminate between M_1 and M_2 ; external margin retired, sinuate; anal angle of secondaries hardly as prominent as in *Anthocharis*. M_1 ascends radius for a little more than one-third of the distance from cross-vein to external margin.

This genus differs from the equally four-branched *Tetracharis* in the passing of the cross-vein by R_2 as well as in the peculiar shaped primaries. I cannot admit the validity of the rule under which Mr. Scudder rejects this generic name. It is a limitation of the law of priority which is not recognized by all zoölogists, and is, I think, in itself indefensible.

I regret not to have had more species belonging to this group for examination. The series as arranged by me is not, as I have said, ideally perfect. It must be remembered that an existing type represents in some main feature a stage, standing between two others, which the higher genus has passed through and the lower commences to exhibit. After the type has been assumed, it will have further differentiated not only in the same direction, but, owing to the inequality of the specializations, in other directions which bring it out of focus. And the parent type has itself changed in the same way; perhaps we can even no longer recognize it as such, perhaps it has dropped away forever.

We now can turn to the generalized type of this series of "angled Whites," one which may stand for the parent of the two lines I have indicated and from the ancestors of which they may possibly have been thrown off. That we have to go to Chili for this type may possibly seem strange, and it may be there is a progenitor or its representative nearer home which I have not discovered, but the question of distribution is so far-reaching and so little is safely known as to its action and causes that I cannot here enter at all upon it. I must take the types where I find them.

Gen. *Eroessa* Doubleday, 1847.

Type: *E. chilensis*.

Eroessa chilensis.

Radius five-branched; second radial in original position above the cell. The first median branchlet has not ascended the radius, but is thrown off from the discal cross-vein. Hence this form is more generalized than all the preceding. It represents quite surely an ancestral form of *Euchloe*, in which latter *M*₁ ascends radius. Cells closed; second anal of fore wings sinuate; fork present. Humeral spur of hind wings abbreviate. Outer margin of wings uneven, slightly scalloped. The plan of neururation accords with the Anthocharid type. On the whole this is one of the most generalized Pierids I have met with.

In this group the humeral spur of secondaries is shortened and straight in all the forms examined except *Anthocharis beleamia* and *A. ansonides*, in which it appears as if curved backwards to base of wing, and *Pontia daplidice*, in which it appears curved in the reverse direction, toward the apex of the wing, and this is the direction of *Pieris*, *Delias*, etc. This makes my reference of *Pontia* to this series doubtful. In any event, *daplidice* is the type of a distinct and more specialized genus than *Pieris*. It must be confessed that it is hardly possible to separate it neurationally from the *Mancipium* three-branched type. Alone the contour of the wing is Anthocharid; there is a slight sexual difference in the primaries, the male wing seeming a little narrower and the anal angle of hind wings is more determinate than in *Pieris*. The ornamentation is Anthocharid. I leave *Pontia* here to draw attention to it. It would, indeed, make the group here discussed more homogeneous were we to transfer *Pontia* to the typical Pierid series; the types would be more of a size. Again, in *Phulia*, the costal vein of hind wings is turned to base of wing, the Anthocharid direction, while in *Trifurcula* it is truncate or abbreviate, straight, as it is in many Anthocharids. In both genera the shape of the wings and ornamentation are Pierid rather than Anthocharid, but this is more clearly the case with *Phulia*.

The "Yellows."

There are apparently two lines, as indicated by me in Proc. AM. PHIL. Soc., January 1898, p. 38. In the non-typical line the wings are proportionately wide and frail, with less accentuated

angles, which, in a branch of the typical line, become unusually prominent, more so than in the angled Whites. No characters have been found to separate these lines, which possibly interlace. The antennæ seem relatively shorter, the thorax more pilose and the body stouter in the typical line, but these distinctions are relative and cannot be controlled.

Non-typical Yellows.

(Euremini.)

Gen. *Nathalis* Boisduval, 1836.

Type: *N. iole*.

Nathalis iole. Grote, PROC. AM. PHIL. SOC., xxxvii, Pl. i, Fig. 5 (neururation).

Wings entire; radius three-branched; R_1 in original position; R_2 advanced outwardly to extremely near cross-vein, hence the *Trifurcula* position is practically assumed. Discal cells on both wings broadening outwardly; M_1 ascending radius outside of discal cell for a space a little less than one-third of the distance to external margin. On fore wings M_2 is nearly central, on hind wings radial. A trace of fork to second anal on primaries. On secondaries the humeral spur has vanished, leaving the outer edge of the vein simply a little uneven or jagged. This is the most advanced form and a specialization of *Eurema*. In my figure, otherwise quite exact, the slightly jagged edge to subcostal is not, it hardly can be, rendered.

Gen. *Eurema* Hübner, 1816.

Type: *E. delia*.

Eurema delia.

Wings entire; radius four-branched; R_1 in original position; R_2 advanced, but much further from cross-vein than in *Nathalis*; R_3 a rather long furcation out of $R_4 + 5$. M_1 ascending radius but not so far as in *Nathalis*; M_2 nearly central on both wings. On secondaries the humeral spur has vanished leaving the vein apparently a trifle more jagged than in *Nathalis*. The cross-vein joins M_1 on hind wings, whereas in *Nathalis* it nearly meets, as on primaries, the radius.

If anything were needed to prove the reality of the successional movements in specialization of the veins on the butterfly's wing, as

brought out in my writings, a comparison of these two types would remove it. *Eurema* represents a stage which *Nathalis* has abandoned in all the above particulars.

Gen. *Terias* Swainson, 1820.

Type: *T. hecabe*.

Terias hecabe. Grote, PROC. AM. PHIL. SOC., Vol. xxxvii, Pl. i, Fig. 6 (neururation).

The wings are more ample, longer than in *Eurema*, but the neururation agrees so closely that I cannot precise any differences. It has seemed to me, by infinitesimal points, as less specialized; but it marks no new phase in the movements of the veins. The genus appears of very doubtful necessity and can be omitted from a table.

Gen. *Xanthidia* Boisduval, 1829.

Type: *X. nicippe*.

Xanthidia nicippe.

But if the necessity of *Terias* is doubtful, there seems too little for the retention of the present type, which agrees in the more ample wings with *Terias*. All the positions of the veins are maintained. I find only a slight variation in the discal cross-veins; on the hind wings of *Xanthidia* the latter run more obliquely outward superiorly, more continuously with M_2 ; on the fore wings, the inward bulging is slightly less pronounced. It seems a good deal like trifling to consider this a distinct genus and I can make no use of it. See Mr. Scudder's remark, *l. c.*, p. 288. I have been unable to secure a specimen of *Abæis cebrene* for comparison.

Gen. *Sphænogona* Butler, 1870.

Type: *S. bogotana*.

Sphænogona mexicana.

I have neither *bogotana*, which Mr. Kirby considers type, nor *ectriva*, so given by Mr. Scudder. Mr. Kirby writes that *bogotana* quite agrees with my species and I can readily believe it. The neururation is practically identical with that of *Eurema* or *Terias*; again the cross-vein of secondaries is a little less bulging, straighter. The only distinction upon which to found the use of a separate name, is that the hind wings are produced or angulate on external

margin, on the interspace just below C_1 . Color and pattern are not distinctive, but virtually agree in all these forms.

The preceding types are all, except *Nathalis*, too closely allied to be generic, and they all agree in one important point, the reduction of the humeral spur. The marks of a former presence of the spur are to be seen on the shoulder of the subcostal vein, slight, jagged protuberances. These are so obscure and so similar in all the cases, that it is hardly possible to draw any distinction, and my impression, that they are less noticeable in *Nathalis*, may be after all incorrect. But it is of no obvious importance; the main fact being that the spur has vanished in all these types. That *Eurema*, *Terias*, *Xanthidia* and *Sphænogona* should agree in this is not extraordinary, since the neurulation is otherwise so similar in all these forms, that their generic separation seems quite unnecessary. Nor are there any other characters, so far as I am able to see, which would authorize us to consider them as types of different genera, and only in *Sphænogona* have we the angulation of external margin of secondaries to sustain a separate title. But that *Nathalis* should not differ, leads to the inference that the reduction of the radial branches may have happened after the loss of the humeral spur. The disappearance of the branchlet suddenly, however, is contradicted by the mass of instances in which the evidence is clear, that the absorption takes place slowly. The stages of progression of the branches along the radius are constantly marked in a variety of forms, in which we find them but slightly differing in relative position. And when R_2 finally leaves its original place above the cell, where R_1 remains, the inference is plainly that it gradually moves along toward the tip of the wing. We see it in fact advancing by consecutive stages to the cross-vein, there assuming the *Trifurcula* position, and then, traveling still onward, gradually approaching the apices of the primaries. All this shifting, which we can now follow, by studying the different stages in different types, must be assumed to reflect the action which has formerly exhausted itself on the radius of secondaries, and of which only fragmentary direct evidence remains in the five-branched radius of *Hepialus*, the Micropterygides, and a late stage of reduction in *Crinopteryx familiella*. After all admissions, that in certain cases the present reduction on the primaries may be relatively rapid, the very multiplicity of the existing stages is evidence that in general it is being slowly accomplished. The movement has been going on

since butterflies were butterflies, whose story is forever in the changes of their wings.

The following two genera represent generalized types as compared with the preceding, *R*₂ being in original position.

Gen. *Ixias* Hübner, 1816.

Type: *I. pyrene*.

Ixias pyrene.

Radius four-branched; *R*₁ and *R*₂ arising above cell; *R*₃ a moderate fork out of *R*₄ + 5. Discal cell closed. *M*₁ ascending radius for a short distance beyond cross-vein; *M*₂ radial. Second anal sinuate with a strong fork at base. Hind wings with humeral spur pointed, turned to apex of wing; lower portion of discal cross-vein weaker, joining *M*₂, which appears continuous.

More specialized than the allied *Idmais* and *Teracolus* by *M*₁ being further removed from cross-vein out of radius. The genus may not be correctly placed, but would fall in here from the stage of specialization.

Gen. *Eronia* Hübner, 1822.

Type: *E. cleodora*.

Eronia cleodora.

Radius five-branched; *R*₁ and *R*₂ in original position above cell; *R*₃, 4 and 5 near together before apices. Discal cell closed; *M*₁ not ascending radius, but leaving at upper angle of cell. Hind wings with humeral spur pointed, turning to apex of wing; discal cross-vein joining *M*₂.

I have little doubt that this generalized type with five-branched radius represents an ancestral phase of *Eurema* and allies.

Typical "Yellows."

(Eurymini.)

As formerly pointed out by me, there seem to be two terminal lines, which appear to fuse and are probably also connected with the Euremini.

Gen. *Eurymus* Swainson, 1829.

Type: *E. hyale*.

Eurymus hyale. Mitt. a. d. Roem. Mus., 8, Taf. ii, Fig. 7 (neuration).

Radius four-branched; *R*₂ has abandoned its original position and advanced along radius to considerably beyond cross-vein.

Discal cell closed; M_1 has ascended radius for nearly a third of the distance between cross-vein and external margin; M_2 strongly radial. On hind wings the humeral spur has entirely vanished and seems to have left no traces; M_2 from cross-vein.

This is a specialized form from the above characters. Its ally, *E. edusa*, is figured PROC. AMER. PHILOS. SOC., xxxvii, Pl. ii, Fig. 8, and the neururation discussed. This genus is known in literature as *Colias*; I follow Mr. Scudder in retaining *Colias* for the type *C. rhamni*.

Gen. *Zerene* Hübner, 1816.

Type: *Z. cæsonia*.

= *Meganostoma* Reakirt, 1863.

Zerene cæsonia. PROC. AMER. PHILOS. SOC., xxxvii, Pl. ii, Fig. 9 (neururation).

This type can be used as representing a close antecedent stage of *Eurymus*, one through which *Eurymus* has passed. The dog's head pattern is then a generalization of the pattern of *Eurymus*, and this would be borne out by *Idmais*, in which it is yet more developed and which represents a still earlier phase of these two genera. The second radial branch stops at the cross-vein in *Zerene*, assuming the *Trifurcula* position. On hind wings a fragment of the humeral spur remains, the tip being worn away.

I formerly referred *Zerene* as = *Colias* Auct. nec Fab., which seems to have been indeed Hübner's intention, who, however, also included this type (*cæsonia*). Mr. Scudder has corrected me (*Historical Sketch*, 213).

The preceding types show R_2 in a state of flux. In the following it retains its original position above the cell and the types are accordingly more generalized. I have my doubts whether a linear succession here displays their true affinities, but they are at least correctly placed with regard to the degree of specialization of the wings.

Gen. *Teracolus* Swainson, 1832.

Type: *T. subfasciatus*.

Teracolus subfasciatus.

Primaries with sharp apices; radius four-branched; R_1 and R_2 in original position above cell; R_3 a moderate furcation out of $R_4 + 5$ to tip of wing. Discal cell closed; M_1 out of radius just

beyond upper angle of the cell. Second anal with distinct fork at base. Hind wings with humeral spur pointed, turning toward apices.

This genus is generalized by the fact that M_1 has not ascended radius for any distance beyond cross-vein, and that R_2 is in original position. It agrees in these characters with the following. It is peculiar by the sharp apices. On both wings the discal cross-vein between M_2 and M_3 is somewhat weakened and M_2 appears continuous in consequence. I can see no indication that the genus is *Anthocharis*, as assumed by Reuter.

Gen. *Idmais* Boisduval, 1836.

Type: *I. chrysonome*.

Idmais vesta.

I have been unable to obtain the type. The present species shows a form quite agreeing with *Teracolus*, differing only that the lower part of the cross-vein on secondaries joins the point where M_1 and M_2 furcate; this position of the cross-vein in *Teracolus* joins M_2 beyond the furcation. Hind wings with humeral spur as in *Teracolus*. Both these genera are more generalized than *Eurymus* (*Colias*) by the well-developed humeral spur, the second radial not advanced, M_1 not ascending radius. They may thus be regarded as ancestral types of *Eurymus*.

This genus may be regarded as more specialized than *Teracolus*, on account of the disposition of the discal cross-vein.

We may now turn to the line in which the wings are angulated and of an unusual, somewhat leaflike shape, in which the agency of mimicry has been suspected.

Gen. *Colias* Fabricius, 1807.

Type: *C. rhamni*.

Colias rhamni. Mitt. a. d. Roem. Mus., 8, Taf. ii, Fig. 8 (neuration).

The costal region above the cell is wider than usual and the subcostal and radial branches are somewhat bent upwards to sustain it. Radius four-branched; R_1 and R_2 apparently in original position above the cell, a little further apart than usual. M_1 ascends radius for but a brief space; M_2 radial. Second anal with a strong fork at base. Hind wings with humeral spur vanished; dis-

cal cross-vein medially degenerate, joining M_2 immediately beyond the furcation of M_2 with M_3 . This species, with sickle-shaped outer margin of primaries and pointed apices between $R_4 + 5$ and M_1 , with also angulate secondaries at C_1 , is more specialized than *Rhodocera*, and lags behind *Amynthia* in the position of R_2 . Since I use the type for comparison I describe it first; on the whole it seems the more specialized genus.

The generic terms *Gonepteryx* Leach, 1815, and *Earina* Speyer, 1839, are considered by Mr. Scudder as synonymous with *Colias* Fab., nec Auct., as also *Gonoptera* Dalman, in Billberg, 1820.

Gen. *Amynthia* Swainson, 1832.

Type: *A. mæricula*.

Amynthia mæricula.

This type shows a stage in which R_2 has progressed further along radius than in *Colias*, stopping but little before cross-vein. On the other hand there are jagged points showing the trace of the humeral spur, which I do not see in *Colias*, and the position of M_2 on secondaries is more central from cross-vein and more generalized, being as in *Rhodocera*. The specializations are, as I have constantly stated, unequal. The apices of fore wings are less sharp in *Amynthia*, which, aside from the movement of R_2 , is more generalized than *Colias*.

Gen. *Rhodocera* Boisduval, 1829.

Type: *R. menippe*.

Rhodocera menippe.

This form differs from the preceding in the absence of angulation to hind wings and the blunt primaries, with external margin, but little depressed. It is the more primitive of the three forms, agreeing with *Amynthia* in the position of M_2 and approaching *Colias* in the position of R_2 . It is more generalized than either in the fact that the base of the humeral spur still remains. This large butterfly represents a stage which both *Colias* and *Amynthia* have, in varying degrees, abandoned.

We will now take up an angulate type, which is more specialized than *Rhodocera*, which it resembles in shape of primaries, and intermediate between *Colias* and *Amynthia* in position of M_2 .

Gen. *Dercas* Boisduval, 1847.

Type: *D. verhuellii*.

Dercas verhuellii.

Primaries blunt, external margin uneven; not depressed; secondaries angulated just beyond M_3 . Texture of the wings frail as compared with *Colias* and allies. Radius four-branched; R_2 has advanced to almost exactly opposite cross-vein, thus the *Trifurcular* position is very nearly assumed. Else the venation is much as in *Amyntia*, M_2 a little more radial. Hind wings, with humeral spur developed, but feeble, pointed, curving a little to base of wing.

This form has evidently the same parentage as the preceding, but represents a slightly differing type of wing.

We now arrive at three types, which are really too close to be of much interest to the classification, and which stand in the relation of ancestral forms to the foregoing modified types with angulate, leaf-shaped wings. I take the genera in the order of priority.

Gen. *Catopsilia* Hübner, 1816.

Type: *C. crocale*.

Catopsilia crocale.

Wings entire; radius four-branched; R_2 advanced almost to opposite cross-vein, not quite so near as in *Dercas*. Discal cell closed; M_1 from radius, about as far advanced along the vein as in preceding genera; M_2 from cross-vein, radial, nearly in the position of preceding genera. Second anal with fork at base. The humeral spur is present as a basal fragment.

This series shows the progression of M_1 up the radius, in *Catopsilia* the most advanced. The genera on the whole lag behind the preceding, not only in the non-angulate, normally shaped wings, but as affording evidence that the *Colias* types have sprung from such forms in the retarded characters of the venation.

Gen. *Phabis* Hübner, 1816.

Type: *P. argante*.

Phabis argante.

As compared with *Catopsilia* the ascent of M_1 up the radius is retarded; the fork of R_3 with $R_4 + 5$ is somewhat longer, all characters of comparative generalization. In fact these three types

only represent unequal stages in the normal course of specialization, preserving an identity of general character which renders the idea of different genera difficult. It must be also borne in mind that all the species have not been compared, and the chances seem to be that among a number of forms agreeing so well externally, similar characters to those here used will occur, still further increasing the number of genera.

In the comparative length of the fork R_3 with $R_4 + 5$ the genus *Catopsilia* is the more specialized.

Gen. *Callidryas* Boisduval and Le Conte, 1829.

Type: *C. eubule*.

Callidryas eubule. PROC. AM. PHIL. SOC., Vol. xxxvii, Pl. ii, Fig. 10 (neururation).

R_2 has strayed still further from cross-vein than in the two preceding types. The fork of R_3 with $R_4 + 5$ is much as in *Phæbis*; on the other hand M_1 has progressed further up the vein, intermediate in position between *Catopsilia* and *Phæbis*. Perhaps this type is really intermediate, although the view that it is the more generalized is tenable. The base of the humeral spur is developed as in *Phæbis*, which latter may more nearly represent the type from which the others and the whole Eurymini have sprung.

We now come to what appears to be a lateral specialization of *Catopsilia* or *Phæbis*.

Gen. *Parura* Kirby, 1896.

Type: *P. cipris* Fab. nec Cramer.

= *Metura* Butler, 1873, preoccupied.

Parura cipris.

Differs from the types included under *Catopsilia* by the hind wings being strongly produced at anal angle. The condition of the shifting branches nearly reproduces the condition of *Phæbis*. The humeral spur is incomplete.

I have now exhausted my material of the types of genera in the Pierids. It has been sufficiently extensive, I hope, to have allowed me to sketch the group and to lay down for the first time some safe conclusions upon the neururation. That more remains to be done I am fully aware, nor do I insist upon minor points, liable to be modified from greater material. I have wished mainly to supply a neurational basis for the generic types examined and as a general rule

have abstained from interfering in the question of the necessity for generic titles.

MOVEMENT OF THE VEINS IN THE WINGS OF THE PIERIDIDÆ.

The movable veins of the primary wing are the branchlets of the radius and media. The generalized type has five branchlets to the radius, two arising above the discal cell, the remainder beyond the cross-vein. The [diminution by specialization of the branchlets is effected by their outward movement, and they appear to pass off by the external margin of the wing. It is especially the movement of the second radial branchlet which gives rise to interesting combinations. Sometimes the outer branchlets disappear, leaving a single vein, and the second radial remains still in position, as in *Pontia*. Again the second radial commences its travels along the upper side of the vein, stopping at various points along the route, before the terminal branchlets have been disposed of, as in *Anthocharis*. Arrived at the point opposite the cross-vein, it gives the *Trifurcula* position, as I have called it in this paper, in which the second radial, then the main vein of the radius from which it ascends, and finally the cross-vein, running in an opposed downward direction, meeting, give the appearance of a trident. This position of R_2 is not confined to *Trifurcula*; it always recurs and must recur in the progress of the second radial branchlet along the vein, and in fact is exhibited now by a number of genera. Also in genera, like *Piccarda*, *Delias*, *Perrhybris*, in which the second radial has long passed the cross-vein by, the ancestors must have exhibited the *Trifurcula* position at some time in their history, when their second radial branchlet attained this point, and for the moment retained it. In the Pierididæ the first radial always keeps its position above the cell.

The generalized type, so far as the media is concerned, has the three branchlets all springing from the cross-vein, the second medial having a central position. This is soon abandoned in specialization and the branchlet approaches the radius, while the cross-vein, in the widening space between M_2 and M_3 , become somewhat worn, the first sign of the ultimate breaking up of the median system through the opening of the discal cell. In the meantime the first median branchlet leaves the cross-vein and ascends the radius on its lower side. Only in such extreme cases of specialization as

Phulia and *Pseudopontia* does the second median branchlet follow this example. Meanwhile the third median attaches itself to the cubital system. In the Pierididæ, the movement, by which the median system seeks its extirpation, is arrested at this point; the cell never completely opening, although often degenerate, between M_2 and M_3 , as in certain *Nymphalidæ*, in which, *per contra*, the upper two branchlets of the media never leave the cross-vein, crowding themselves into the upper corner, but refusing to ascend the radius. This is the general attitude of the brush-footed butterflies. The opening of the cell, wherever this happens by the disappearance of the cross-vein centrally, is the signal that the median system has finally departed; the radial and cubital systems of the wing inheriting its last possessions, the three terminal branchlets which they divide between them and subsequently have to feed. The base of the media had departed long ago; the veins running from the cross-vein to the root of the wing are now only found in the Tineides, although scars along the tegument of the cell and little backward jutting spurs on the cross-vein tell of their former existence in the Pierids as well. The movements of the veins belonging to the two systems are unequal.

The hind wings seem to show little movement of the veins; they have performed an antecedent work in the simplification of the radius, which shows as a single vein. The first radial branch has seemingly gone to make up the humeral cell, but in the Pierids, the humeral cell has itself become absorbed and all traces of the forking of the radius at base have vanished. I therefore notate the radius by a simple R ; theoretically it should stand $R_2 + 3 + 4 + 5$, while the subcostal vein should stand $Sc. + R_1$, marking where the radial branchlets have respectively disappeared to. The hind wings of the Nymphalids show a greater movement of the veins than those of the Pierids; in the brush-footed butterflies the disintegration of the median series seems here to find its impulse and the specialization of the hind wings is in a constant state of advance. This is seen by the opening of the cell on the secondaries of *Araschnia*, *Melitæa*, etc., while the cell on primaries remains still more or less perfectly closed. Evolution is more active with the fore wings of the Pierids, with the hind wings of the Nymphalids; in which latter the bunching of the median nervules at the upper corner of the cell seems to meet the requirements of their mode of flight.

VALUE OF GENERIC CHARACTERS.

This study of the wings of the Pierids will, I think, demonstrate that there exists no standard by which we can decide what constitutes or how much character should underlie the idea of a genus. The difference between the genus and species idea is quantitative merely. The conception of a genus as an independent entity, as in itself a thing closed and with real outlines and bounds, which it only requires a trained understanding to recognize, is seen to be illusory. The apparent limits of the genera are due, like those of the species, to gaps in the record. When these gaps are slight the lumpers ignore them, forgetting that the main business of entomology is to exhibit differences, not to lay stress on resemblances. The needless erection of genera should, indeed, be avoided, no less than the overlooking of distinctive characters. But what is here "needless?" One can only illustrate what one subjectively considers needless by examples. The generic term *Xanthidia* seems to me quite unnecessary. On the other hand, I would retain the Anthocharid genera, although superficially much alike, because they emphasize certain stages in the specialization of the radius, which we are obliged to notice and discuss. *Tetracharis*, for instance, represents a four-branched type in which R_2 has not yet attained the *Trifurcula* position; as such it is as much entitled to a generic name as another form not yet recognized as a member of a chain in which the links are so continuous. Everywhere, however, the links exist or have existed. It is not only that it is improbable that Nature has here progressed by jumps, but we cannot draw the line anywhere with exactness between such jumps as shall, and such as shall *not* be entitled to generic recognition. It becomes thus a subjective question, to be settled by each observer, accordingly as he is soberly or extravagantly inclined in either direction, as to making many or making few genera. I myself tend in the direction of making many, for fear of passing over characters of structure and to avoid packing away distinct types of succession in one category. It becomes, finally, clearer, that many more kinds of butterflies have perished than are now to be seen; the tertiary and quaternary faunæ seem specifically different.

Certain of the characters of neuration here recognized as of generic value, so far as regards the movable veins or branchlets, are apt to appear as characters of variation within the limits of the same species of butterfly, although I have not noticed any variation of

the kind in the Pierids. In the Parnassiidæ I have recorded an individual variation in the position of R_2 and M_1 on the fore wings of *Zerynthia*. The fact that these variations take the normal direction, seems to denote, that they are shown by anticipation (specialization) by a part of the mass of individuals before becoming fixed for the species as a whole. I have found no sexual characters in the neururation; these appear to be limited to the outline of the wings. In the male, *e. g.*, *Tachyris*, the primaries are in special cases narrowed and more pointed at the tips; in *Dismorphia* there is added to this narrowness in the primaries a compensatory greater breadth in the secondary wings. The female wing has been preferred for study, since this sex seems the more conservative. I have, however, found no positive proof of this in the neururation, so far as the limited number of specimens studied will allow me to see. The neururation affords no assistance to the theory that the color and pattern of the female is influenced by atavism. In fact, I have not succeeded in showing that the color and veining move together at all closely, and have accordingly omitted almost everything not related to structure and shape of the wings. As with the Papilionides, however, a white color, while persistent throughout a line, seems to be at least a secondary, not a primary color. The male, *e. g.*, *Perrhybris*, *Prioneris*, *Phrissura*, *Huphina*, is apt to whiten, to become paler.

But in *Enantia melite* and in *Colias rhamni* the male is of a much deeper color, more yellow than the female, while the most specialized and the most generalized forms alike show pale colors in the Pierididæ. In size the butterflies seem to tend to becoming smaller, as seen in such specialized forms as *Phulia* and *Nathalis*.

The total impression we derive of the neururation is one of continuity. The forms lead from one to another with unequal gaps between the genera, hence the generic characters are unequal also. The changes in the position of the veins are no doubt mechanically caused by the strain of the organism against its media. The disparities are accentuated for the moment, related to those interferences in the world process which are the ultimate cause of all diversity in nature.

GENEALOGICAL TREES AND TABLES.

In proportion as an intelligible system underlies the drawing up of genealogical trees and tables of genera are they of use and

value. As I once said of the subgenera of *Apatela*, they serve to light up the subject from within. There exist genealogical twigs scattered up and down in literature which seem to me to have been drawn at haphazard, so little or no explanation is vouchsafed, and, on examination, so little system is displayed. But from Mr. Scudder's dangerous-looking cluster of spikes to the peaceful gulf stream of names which flows over Mr. Reuter's double page, the lines can be followed with the help of a pin, and one feels that the opportunity is offered for pleasantly acquiring exclusive information. It is, however, when I survey Sir George Hampson's phylogeny of the Syntomidæ, that the magnitude of the task before me, in preparing a similar table of the Pierid genera, becomes appalling. There are so many, many, a perfect trellis work of names, all bound together by short and sharp lines of descent and affinity. There are no doubts, no uncertainties; each title finds its exact place, as in a Chinese puzzle, which, if it were to fall apart, who could put together again? And when I look up the couple of names I have contributed to this ordered espalier, I am obliged to confess that never, never would I have been able to get them into their present situation. And there is no key to the puzzle, no showing how it is done. Why are *Metarctia*, *Pseudapiconoma*, *Zethes*, so placed? Why is *Hyaleucerea* at the bottom and *Urolasia* at the top? Why all the names between them? Why? Why? "*Pourquoy*, my dear knight?" As in the play, the question may be impatiently answered by another—"Do, or not do?" The idea of a genealogical tree being given, the lines must be drawn in every case, to give an idea of completeness, of mastery of the subject, and this seems rather to be Mr. Meyrick's conception and definition of Darwinism.

And yet these relationships, to be symbolized by these equal lines, are always unequally expressed and often in nature very obscurely indicated. The leading structural peculiarity of a large group once seized, it is not difficult to detect this distinguishing feature when it occurs in a second, otherwise differing group, to infer thereupon the phyletic connection, assign the respective grade of specialization and conclude by uniting the collective names by a line in a diagram. With genera, when numerous, the question becomes one of greater detail, the interrelations grow complicated; so that, if one insists upon drawing up a complete table and connecting all the names, the temptation in certain places to cut a Gordian knot by tying one becomes correspondingly frequent.

Despite, then, the preconception of authors, that their papers on their subject are final, yet it is seen that they are not so, and this from the complexity of the matter and the inability of the writer to look all around it. It was Dr. Johnson who said that the first care of the builder of a new system is to demolish the fabrics which are standing. I am afraid this may be repeated of some of our work on the Lepidoptera, and that this demolition is not always necessary. I should be sorry, however, to apply here the Doctor's further opinion that thus the human mind is kept in motion without progress. At the end of the last century there seems to me to be a clear residue of advance. The truth of evolution conceded, the great fact that the biological is part of the geological process admitted, it might seem superfluous to attempt to gauge the flight of butterflies, were they not fellow-passengers across the scene, and could we not detect in their fate the shadow of our own. No witness can be thought unnecessary whose testimony, even if silent, bears on the problem of life. Undoubtedly in this way our interest in the contents of Natural History Museums increases the more we consider them in relation to ourselves. Indeed, this is the deeper reason for the existence of all collections.

To return to our tables of genera: it is but too certain I can offer no such complete scheme of the Pierids as Sir George Hampson has given us of the Syntomids. Setting aside the incompleteness of my material, I do not know if *Pontia*, for instance, is surely an Anthocharid, or belongs to the typical line of *Pieris*. I do not even know if there is anybody who could tell me, so contradictory appears the evidence, and there are a number of questions, perhaps less crucial and more easily satisfactorily solved, as to which I am in doubt, and to resolve my doubts by drawing firm lines on a plan I am incapable. By a hundred points do these frail insects impinge on their surroundings and fade away into space. All that I can try to do is to see that the names along a horizontal line represent forms conforming, barring immeasurable inequalities, to a certain approximate grade of specialization, while those, in the same vertical line, succeed one another in the expression of one of the movements which I have elsewhere shown to occur in the position and number of the veins of the wing. Thus the succession represents ideally the probable or possible sequence in time and space. I use generic names only in connection with the structure of the type.

THE DIPHYLETISM OF THE DIURNALS.

From unpublished photographs sent me by Prof. Comstock it appears that on primaries a bifurcate third anal vein is present in the pupa of *Pieris*, of which no trace is seen in the imago, unless we consider the thin piece, anastomosing with second anal at base, as a relic. If the homology of the free third anal vein of the imago of the Papilionides, with this thin piece (sometimes a mere scar, again wanting) joined outwardly to second anal of the imago of the Hesperiaes, be denied, the definition given by me (PROC. AMER. PHIL. SOC., xxxviii, 43) may be accepted. If, on the contrary, the homology be asserted, then the wording may be altered as follows:

- A. Butterflies having a short third anal vein on primaries, running downwardly free from base of wing to internal margin; on secondaries only one anal vein. PAPILIONIDES.
- B. Butterflies having a short third anal vein on primaries, joining outwardly the second anal vein (this fork sometimes wanting by reduction and always thinner than second anal or degenerate) and having more than one anal vein on secondaries HESPERIAES.

The question of the homology of the veins cannot affect (as I have elsewhere stated) the argument as to the diphyletism of the diurnals. A natural group in which a certain vein is free in the imago cannot well have the same origin with an opposed and equally natural group in which this same vein runs in an opposite direction and fuses with the next vein lying above it. The troublesome factor in the classification of the diurnals has been the position of the Papilionides. They have been approached violently to the Pierids and learned treatises have allied them with the Hesperids. And then they have been forcibly thrust in between the Blues and the Skippers, an inoculation which the genealogical tree most naturally resists. If we succeed in removing them from their enforced union with the Hesperiaes, unexpected light may fall upon the history of the development of the Lepidopterous organization. Nor can we fit the Papilionides in between the Hesperiaes and the moths, so that, in a linear arrangement, the only course remaining open for us to pursue is to head with them the series of the diurnals. The whole question of phylogeny is a relative one. Even if we can make out resemblances in

the embryonal wing, these do not abrogate the differences in the imaginal. These exist in the present instance, throwing the common origin of the two groups further back, and render the supposition tenable, that the Papilionides and Hesperiaes, as butterflies, have a different origin. The conclusion to which I have come is this, that all the groups of the Hesperiaes converge in ancestral types of the Skippers, to the entire exclusion of the Papilionides.

Objections will be made that the Skippers are so different from other butterflies. I have tried to show that these differences arise from secondary specializations and are not constant or peculiar. From a bend in the antennæ, classifiers give such names as "Grypocera." But how about those Skippers which lack the bend? Are these, too, "Grypocera"? Again, some writers dwell with astonishment upon the fact that certain Skippers like to stroll in the dusk of evening, and these writers hold that, with such habits, these Skippers cannot be considered as orthodox diurnals. And then a special name is coined for them as a sort of atonement for heresy. But clearly all this arises from preconceived opinions, from want of consideration and weighing of characters. No value is given by these classifiers to the exceptions which deprive their categories of proper support. All the characters shown by the Skippers are explainable by the fact that we have to do with a group originally transitional in habit and structure, and having become a fixed and natural one through custom.

THE EVIDENCE FROM FOSSIL BUTTERFLIES.

The evidence from paleontology is so scant that of itself it can have no deciding weight. One feature, however, which assists my ideas is that the tertiary deposits have yielded a larger proportion of Nymphalids. We might naturally expect, among the Hesperiaes, that the groups in which the radius is specialized, viz., the Pierids and the Blues, would be more recent, succeeding in point of time the Skippers and the Nymphalids. I think we may assume the fact. In a recent valuable paper by Dr. Rebel, a restoration is given of the wing of *Lycanites*. This is a presumed lycænid, and there is no improbability in the view that the Blues may have been represented in the Miocene. But I wish to point out that a slight change in the restored wing parts would give us the Skipper type, in this case apparently one resembling the North American Megathymidæ, a group with generalized larvæ, and which may also have enjoyed a greater range and rep-

resentation in tertiary than in recent time. For the Miocene strata of central Europe contain a number of types of vertebrates and land shells which are now confined to America, but at that epoch enjoyed so wide a distribution. In Europe these types subsequently disappeared, giving place to more specialized types, but in America they have persisted. Without having seen the specimen I could not venture upon an opinion not in accord with that of so reliable an observer, and what I now point out is that the wings of the Blues and Skippers nearly agree, and I repeat that it is probable that the former group has emerged from the same immediate stock with the latter. Another circumstance to be noted is that the tertiary species are generally distinct. This leaves room for the supposition that the diurnals have changed both a good deal and comparatively rapidly. It seems that the Nymphalids flourished in the tertiary and that the quaternary is evidently the epoch of the Pierids and the Blues, so that we may safely regard these latter groups as among the more modern types of butterflies.

With regard to the phylogenetic line *A*, the Papilionides, we know, from Dr. Rebel's researches, that its most advanced group, the Parnassians, existed in the Miocene. No certain identification of fossil remains of the Swallowtails proper, the Papilionidæ, appears to have been yet made anywhere. But if my views are correct, we may yet discover that Ornithoptera-like forms had a wider distribution in preceding epochs than at the present time. The classification and the general theory of the development of the diurnals, brought forward in this present and previous communications to the American Philosophical Society, is so different from the general opinions and conclusions of other authors, that I have given them with diffidence and in all deference. My views have gradually shaped themselves out of the discovery of the directions of the movements which undoubtedly occur in the evolution of the veining of the Lepidopterous wing. While I have tried to correlate the subordinate types, I have endeavored to make it quite clear that there are two antagonistic and principal types in the neururation of the diurnals, and that this fact authorizes the belief that the Papilionides and Hesperiaes may have had an independent origin.

MIMICRY.

None of my predecessors appear to have studied the phenomena of mimicry in connection with the structure and specialization of

the ~~question~~ ~~whether~~ ~~there~~ ~~is~~ ~~a~~ ~~question~~ ~~chiefly~~ ~~of~~ ~~color~~ ~~and~~

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other veins are as on fore wings. The persistent anal vein is the

~~representation in tertiary than in~~ strata

my predecessors appear to have studied the phenomena
in connection with the structure and specialization of

the wings. It has been with them a question chiefly of color and pattern or outline. The conclusion to which these studies of the neururation lead is this: *The older and more generalized forms*, here Nymphalids and Papilionids, *serve as models; the younger and more specialized forms*, here Pierids and Dismorphians, *do the copying*. As yet I know of no older type which has assumed the dress of a younger. Mimicry would thus fall in with other phenomena of succession, and is deprived of the appearance of fortuity which now clings to it in literature.

SYSTEM OF NOTATION.

In the designation of the veins I have followed here the same system as in my other papers, with the exception that I have adopted Prof. Comstock's recent change with regard to the longitudinal veins. These are indicated by an initial letter of the name instead of a Roman numeral. On the fore wings the subcostal is marked *S*; the radius by *R*, with the Arabic numerals 1 to 5 for the branches; the Media by *M*1 to 3; the Cubitus by *C*1 to 2; the anal veins by *A*1 to 3; the third anal is wanting in the Hesperiadæ, unless the more or less illegible straight prong from the second anal at base be homologous with it. The costal vein is absent by reduction on both wings; on the primaries the thickening of the costal edge may or may not be a trace of it, and in any event is of no importance to designate. On the hind wings I have suggested (January, '99) that the so-called "precostal spur" is homologous with the "humeral veins" of Prof. Comstock, multiplied in the Lachneids. In a letter to me Prof. Comstock adopts this view and suggests the prong should be so notated. I prefer to call it the "humeral spur" and to mark it "h. s."; the word "vein" might cause a confusion with a longitudinal vein. The subcostal of the hind wings has absorbed apparently, Prof. Comstock tells me, the first branch of the radius as part of the humeral cell. Since this is obsolete in the present group, I have marked the vein here as on the primaries with a simple *S*. The radius of hind wings is reduced to a single vein, representing $R_2 + 3 + 4 + 5$, the branch *R*1 having gone apparently with the subcostal; but, since this cannot be seen in the present group, there is no use in complicating the notation and I use merely the letter *R*. The other veins are as on fore wings. The persistent anal vein is the

second; the first is also the first to disappear, followed by the fourth and third.

The humeral spurs of the Lachneidæ have been cited as examples of specialization by addition in the wings of the Lepidoptera. This may have been their origin. They appear to attain their maximal development on the secondaries of *Eutricha quercifolia* (consult Grote, *Ill. Zeits. f. Entom.*, Band 4, Heft 4, Fig. 1). In the diurnals the spurs would be already reduced to a single one. But even in the Lachneids the generic types I have examined have them very unequally developed. And they may have appeared independently in different groups. The repetition of the neurulation, as might be expected in homodynamic organs like the wings, is, so far as I know, always exact. Slight variational changes in the position of the veins, following the general directions of specialization, are repeated on both sides of the insect. Accidental aberrations, failures in development, are of unequal, local origin and have a special cause. The two classes of individual deviation from a given type should be discriminated.

The bending inwardly of *A* 3 on the secondaries of *Elodina cynthia* (Fig. 10) leaves a wide, unsupported lobe at the base of the wing, which seems to be traversed by an irregular, linear thickening of the membrane, having the false appearance of a vein. This would be secondary and its origin analogous with that of the humeral spurs. But the feature must be studied from more material than at the moment is at my disposal. It is possible that the last anal vein (*A* 4) in *Pseudopontia*, marked in my figure "ix," is homologous with this thickening in *Elodina*; in both *A* 3 is bent inwardly. Compare these PROCEEDINGS, xxxvii, No. 157, Pl. i, Fig. 7.

ACKNOWLEDGMENTS.

After wandering for nearly forty years in the wilderness of butterflies, it may be the last time I have the opportunity of expressing my indebtedness to other students and their works. And first I return thanks to Prof. Comstock for the assistance which his publications on the wings of the Lepidoptera have been to me, no less than for his kind communications upon debatable points. Prof. Comstock has worked out, with immense patience and labor, a system of notation applicable to the veins of all insect wings, and which is here adopted for the butterflies. Thus the original idea of Redtenbacher, who must not be forgotten, has, I hope, received its

practical realization. Nor should the work of Herrick-Schaeffer upon the veining, even if partial and exclusive, be passed over. This author was the true successor of Hübner, who troubled himself alone with color and pattern and shape, not going beneath the surface of the wings. If I mention again Mr. Scudder's *Historical Sketch*, it is to renew the expression of my hope that the book may be republished and brought down to date. No one can do this so well as the gifted and industrious author whose acquaintance I have enjoyed for all these years and for whom I feel undiminished esteem. If I have opposed his classification of the butterflies, I have used, in my efforts to subvert it, the same weapons employed by him to defend it. I am anxious to say a thankful word to Mr. W. H. Edwards for his letters and the information he has given me and all of us on the North American butterflies. With Dr. Packard, I am one of four authors who, commencing to write at about the same time on American Lepidoptera before the war, have lived until to-day to see much that they have accomplished adopted, and, in a varying degree, also disputed. It must be our reward to have worked for the spread of knowledge according to our differing lights—*manifesta rotæ vestigia cernes*.

I am glad again to thank Mr. W. F. Kirby, of the British Museum (Natural History), for his complaisance in affording me information not to be found in Mr. Scudder's book. Mr. Quail's papers on the neuration have been suggestive to me. I am indebted to Dr. Chapman for letters and copies of his ingenious papers on the pupæ of butterflies. Finally I am indebted to Dr. O. Staudinger and A. Bang Haas for determinations which give this work an element of certainty as to the identity of material which it could not have had from my own authority.

EXPLANATION OF PLATE I.

The figures are obtained by an improved photo-lithographic process. *S* = subcostal vein; *R* = radius 1 to 5; *M* = media 1 to 3; *C* = cubitus 1 to 2; *A* = anal 1 to 3. The costal veins are absent in the Lepidoptera through reduction. The fork at base of second anal of primaries is not numbered. The first anal is usually obsolete. On hind wings h. s. = humeral spur.

Fig. 1. *Asalais gigantea*. Type of genus. This immaculate and more specialized form differs from *Leptidia* by the production of the primary wing between *M*₁ and 2. On hind wings the position of *M*₁ is further removed outwardly and *M*₂ is nearer 3; the humeral spur is also straight and truncate.

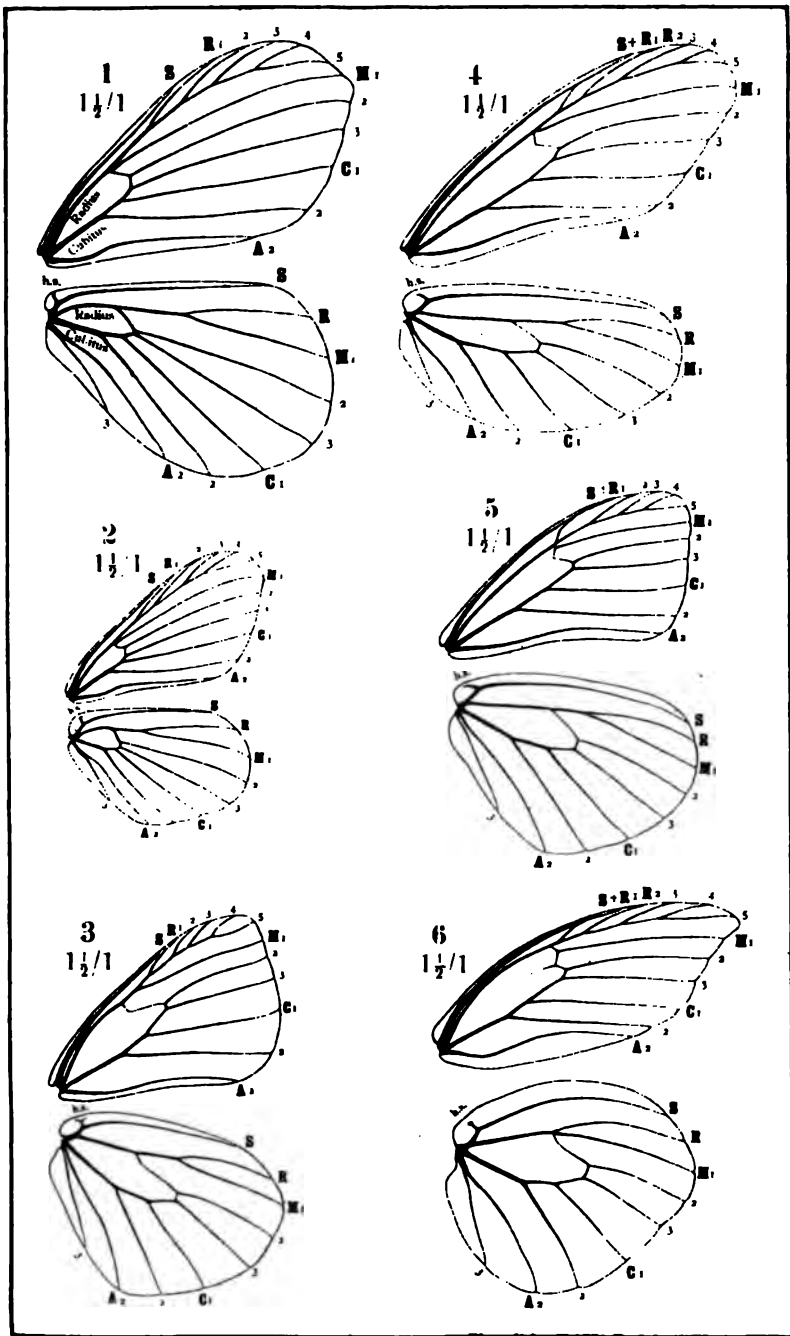
Fig. 2. *Leptidia sinapis*. Type of genus and subfamily. This latter is characterized, as compared with the Dismorphianæ, by the retreating discal cells and central position of second median on primaries. No trace of fork to second anal. Compare with preceding figure.

Fig. 3. *Pseudopieris nehemia* ♀. Type of genus. An isolated and specialized form belonging to the Dismorphianæ, which have proportionate discal cells and second median vein cubital on both wings. In *Pseudopieris* the cell retreats in its upper part, leaving the first median on primaries free from radius. The first radial is free to costa; h. s. Y-shaped. The uniformly pale color here accompanies a peculiar specialization in the veining.

Fig. 4. *Leptalis astynome* ♀. Type of genus. The first radial fuses with subcostal; first median from radius at upper corner of discal cell. On hind wings *M*₁ from radius well beyond discal cell.

Fig. 5. *Enantia melite* ♀. Type of genus. The first radial branch is bent and fused with subcostal. *M*₁ from cross-vein close to upper corner of discal cell, hence more generalized than *Leptalis*.

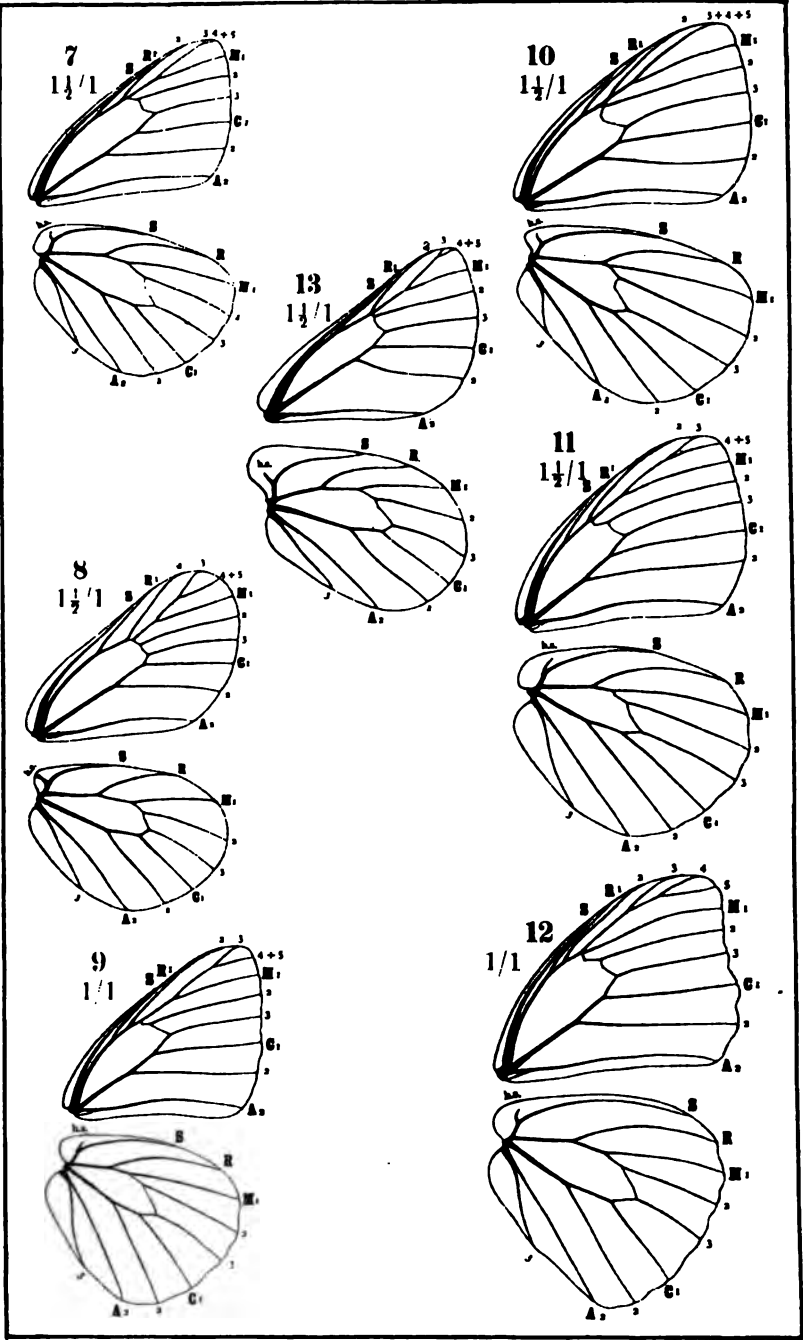
Fig. 6. *Acmepteron nemesis* ♂. Type of genus. The proportions of the wings are Orthopteralike. The backward spur on discal cell, a relic of the base of media, marks the generalization. *R*₁ straight, fusing with subcostal. *M*₁ from cross-vein, further removed from upper corner of cell than in *Enantia*, hence the more generalized form. Hind wings with discal cross-vein joining *M*₁ at furcation with radius. This dark form has ancestral characters compared with the two preceding. The Leptidianæ belong to the fauna of the Old, the Dismorphianæ to that of the New World.



Photolith. F. H. Baedeker, Hildesheim.

A. Radcliffe Grote — Wings of Butterflies.





Photolith. F. H. Budeker, Hildesheim.

A. Radcliffe Grote — Wings of Butterflies.

EXPLANATION OF PLATE II.

The figures are obtained by an improved photo-lithographic process. *S* = subcostal; *R* = radius 1 to 5; *M* = media 1 to 3; *C* = cubitus 1 to 2; *A* = anal 1 to 3. The first anal vein is obsolete; the thin fork to second anal is not numbered. On hind wings h. s. = humeral spur.

Fig. 7. *Pieris napi*. Note the Pierine and original position of *R*1 and 2 above the cell; though here *R*2 is advanced nearly to cross-vein, and in this is *P. napi* a slightly more specialized form than the type of the genus *P. rapæ*, as also in that the fork *R*3 is still more reduced. On hind wings h. s. abbreviate, curving outwardly. The fork to second anal on fore wings is thin, but apparently a functional vein. Compare Schm. Hild. Taf. I, Fig. 5, for figure of *P. rapæ*.

Fig. 8. *Mesapia peloria*. Type of genus, belonging to the opaque-veined *Aporia* series. When compared with *Pieris*, more generalized, the fork of *R*3 being longer. Consult the figure of *Aporia*, cited in text, for comparative details.

Fig. 9. *Mylothris rhodope*. Type of genus; a four-branched form belonging to the *Ascia* series; *R*1 and *R*2 in the original Pierine position above the cell; the veinlet *R*3 is slightly bent just below costa (as in *Mancipium*), showing that an additional radial veinlet has shortly been given up.

Fig. 10. *Elodina egnatia* ♀. Type of genus; belongs to the clear-veined, thin and wide-winged *Ascia* group, convergent with *Pieris*. The most specialized form, as shown by the radius, being three-branched, and *R*2 advanced beyond cross-vein. Compare text.

Fig. 11. *Phrissura agis* ♀. Type of genus; a more generalized form than *Elodina*, as shown by the four-branched radius; *R*2 not advanced as far as the cross-vein, still in the Pierine position. Compare, for these points, with preceding figure.

Fig. 12. *Nepheronia poppea (idotea)*. Type of genus. This is the generalized form of *Mylothris* (Fig. 9), and in which the radius is five-branched. *R*2 is further from cross-vein than in the more specialized *Mylothris*, of which this is probably the direct ancestral form. The shape of primaries is different from *Mylothris*, the pattern identical. The fork to second anal is here very thin and perhaps hardly functional.

Fig. 13. *Trifurcula huanco* ♂. The primary wing shows the *Trifurcula* position of *R*2, advanced to just opposite the cross-vein. Compare text.

EXPLANATION OF PLATE III.

The figures are obtained by an improved photographic process. S = subcostal vein; R = radius 1 to 5; M = media 1 to 3; C = cubitus 1 to 2; A = anal 1 to 3. On hind wings h. s. = humeral spur. The thin fork at base of second anal of primaries is not numbered. The costal vein is absent through reduction on both wings in the Lepidoptera.

Fig. 14. *Piccarda eucharis* ♀. Type of genus. A highly specialized Pierid, in which the radius of forewings is three-branched; R_2 has left the original Pierine position above the cell and traveled along radius until it forms but a moderate fork with $R_3 + 4 + 5$, before apex. M_1 has ascended the radius on its lower edge for a considerable distance beyond the cross-vein; hence this is the specialized form of the succeeding *Delias*. In both genera the fork to second anal of primaries is reduced to a mere scar.

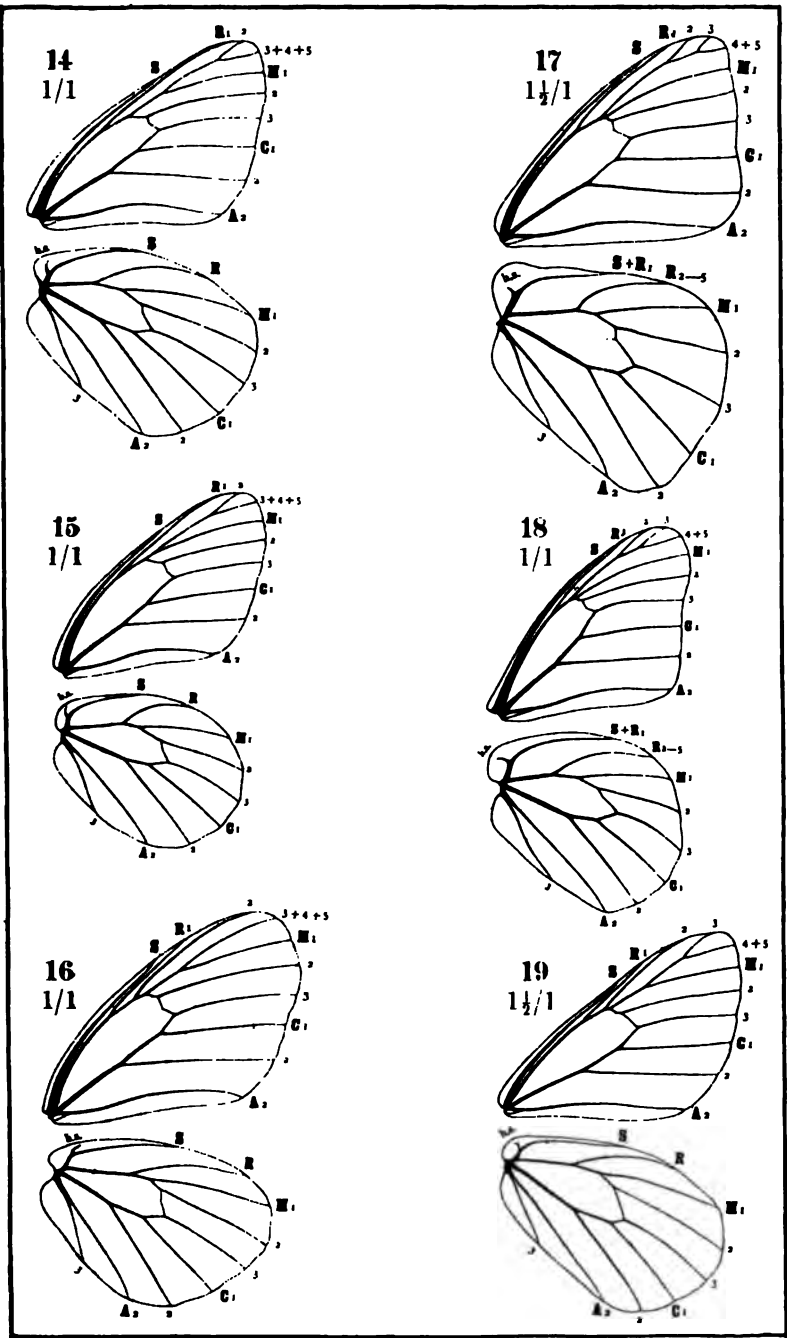
Fig. 15. *Delias egialea* ♀. Type of genus. Compare with *Piccarda* as to position of M_1 , which here leaves radius immediately beyond junction of cross-vein; fork of R_2 longer than in *Piccarda*. In these genera the specialization of radius has outstripped that of media, and reaches its fullest expression yet attained.

Fig. 16. *Pyrrhybris pyrrha* ♀. Type of genus. A specialized Pierid in which R_2 has retained the Pierine position above discal cell and has not traveled along radius. Hence this is more generalized than the preceding, although the radius is equally three-branched. Compare text.

Fig. 17. *Hesperocharis erota*. Type of genus. Radius four-branched, the branches R_2 , R_3 , short, near together before apices, taking Anthocharid position; h. s. truncate.

Fig. 18. *Cunissa hirlanda*. Type of genus. Primaries with blunt and rounded apices, contrasting in shape with *Hesperocharis*. R_2 to 3 longer, and M_1 a little further from radius on crossvein, hence more generalized than *Hesperocharis*.

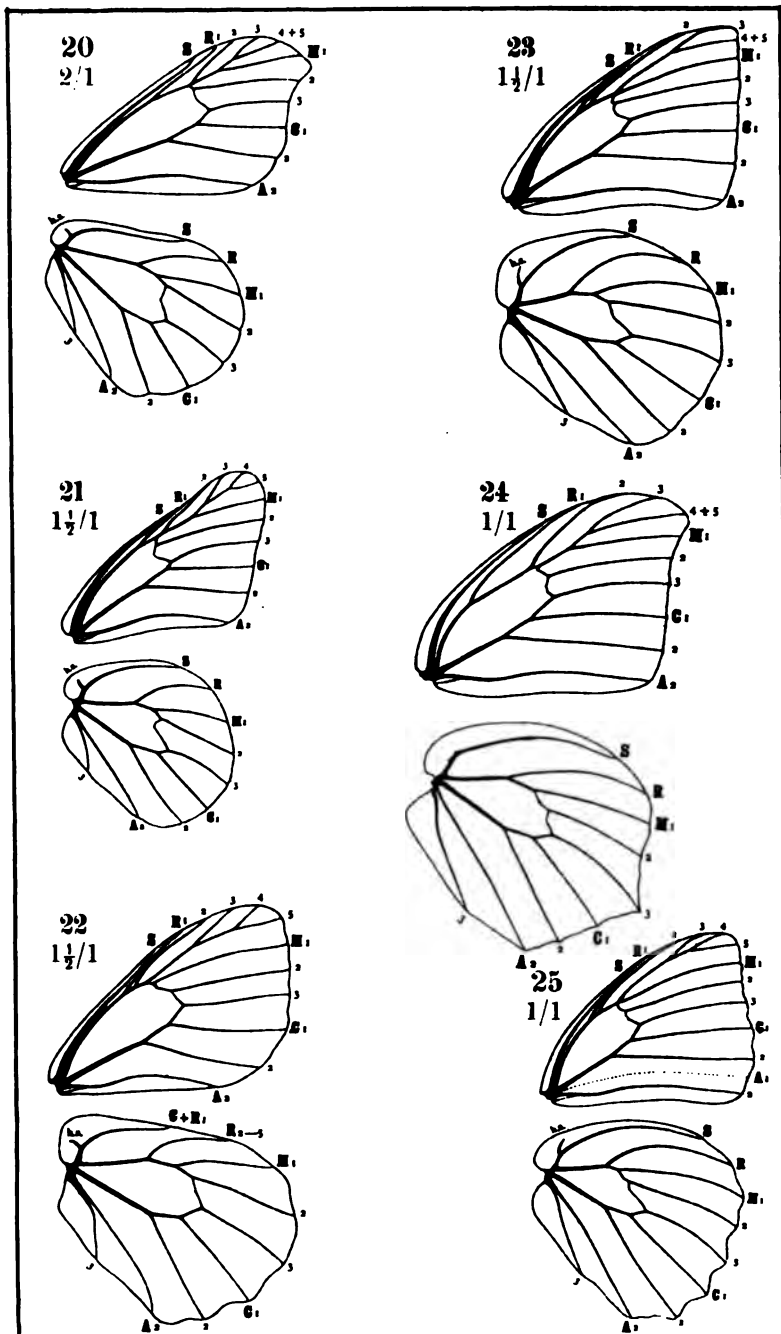
Fig. 19. *Neophasia menapia*. Type of genus. A typical Pierid in which R_2 keeps its original position above cell, but here well advanced. Radius four-branched. Probably a form ancestral to *Pyrrhybris*, or slightly divergent on the same line of specialization.



Photolith. F. H. Bödeker, Hildesheim.

A. Radcliffe Grote — Wings of Butterflies.





Photolith. F. H. Bödeker, Hildesheim.

A. Radcliffe Grote — Wings of Butterflies.



EXPLANATION OF PLATE IV.

The figures are obtained by an improved photographic process. *S* = subcostal vein; the costal vein is absent through reduction in the Lepidoptera; *R* = radius 1 to 5; *M* = media 1 to 3; *C* = cubitus 1 to 2; *A* = anal 1 to 3. On secondaries h. s. = humeral spur. The thin fork to second anal of primaries at base is not numbered.

Fig. 20. *Midea genutia*. Type of genus. A four-branched Anthocharid, in which *R*₂ has just passed out of the *Trifurcula* position opposite cross-vein. Compare with *Tetracharis*, in which *R*₂ has not reached the cross-vein.

Fig. 21. *Zegris eupheme*. Type of genus. A five-branched Anthocharid, in which *R*₂ has just passed the *Trifurcula* position. A more generalized form than *Midea*.

Fig. 22. *Eroessa chilensis*. Type of genus. One of the most generalized Pierids, ancestral to the Anthocharid line. Radius five-branched; *R*₂ in original position above the cell and close to *R*₁, which latter branchlet alone always remains constant in position and does not shift. The first median branchlet, which in all other Anthocharid genera has ascended radius and springs from it outside of cell, here retains its primitive position on cross-vein. This rare type is most instructive in supplying a generalized stage, rendering the succeeding steps of specialization in the position of the veins understandable. Compare these three figures with those of Anthocharid genera on Plate I, Vol. xxxvii, of these PROCEEDINGS.

Fig. 23. *Teracolus subfasciatus*. Type of genus. An African form more generalized than *Eurymus* (see PROCEEDINGS OF THE AMERICAN PHILOSOPHICAL SOCIETY, Vol. xxxvii, Pl. II, Fig. 8), with which it must be compared. It seems ancestral to *Eurymus*, in that *R*₂ has retained original position.

Fig. 24. *Amyntia marula*. Type of genus. This figure will serve to illustrate the wings of that line of the Eurymini in which the primaries have assumed a leaflike shape. Compare Schm. Hild. Taf. II, Fig. 8, for wings of its ally, *Colias rhamni*.

Fig. 25. *Eronia cleodora*. Type of genus. A generalized, radially five-branched form of the Euremini, which should be compared with *Eroessa* and *Nepheronia*. The resemblances suggest that these generalized types approach in wing structure. The five-branched types are rare in the Pierids, but in the brush-footed butterflies this generalized type of the radius is normal and never abandoned. In the primitive Pierid wing the radius was five-branched, and upon this character all the Hesperiaes meet. The greatest divergence from this type is to be found in specialized Pierids, such as *Pontia* and *Piccarda*.

Stated Meeting, January 19, 1900.

Vice-President WISTAR in the Chair.

Present, 32 members.

Messrs. William Brooke Rawle, Robert C. H. Brock and Barton C. Hirst, newly elected members, were presented to the Chair, and took their seats in the Society.

Letters accepting election to membership were received from Profs. James Dewar, Barton C. Hirst, William H. Holmes, Jacques Loeb, A. B. Meyer, Sir William Henry Preece and Prof. Charles Otis Whitman.

Donations to the Library were announced.

The Curators announced the donation of a portrait of our late fellow-member, Dr. D. G. Brinton, from his friends, and of a medal from the Numismatic and Antiquarian Society, for which the thanks of the Society were ordered.

Dr. I. Minis Hays then read a paper entitled "A Contribution to the Bibliography of the Declaration of Independence."

R. H. Mathews, of Paramatta, N. S. Wales, presented a paper on "Divisions of the South Australian Aborigines."

Mr. Robert Paterson Field made some remarks on Col. William Anderson and presented a photograph of a portrait of Gen. Washington by Charles Wilson Peale, and exhibited the portrait.

Dr. I. Minis Hays was unanimously reelected Librarian for the ensuing year.

The meeting was adjourned by the presiding officer to Friday, February 2, at five minutes before 8 P.M.

*Adjourned Stated Meeting. January 19, 1900,
February 2, 1900.*

Vice-President BARKER in the Chair.

Present, 14 members.

A communication was read from President Fraley, making the following nominations for the Standing Committees for 1900:

Finance.—Philip C. Garrett, William V. McKean, Joel Cook.

Hall.—Horace Jayne, Joseph M. Wilson, Harold Goodwin.

Publication.—Henry Carey Baird, Patterson DuBois, I. Minis Hays, Joseph Willcox, Morris Jastrow, Jr.

Michaux Legacy.—Thomas Meehan, Angelo Heilprin, William P. Wilson, Burnet Landreth, Joseph T. Rothrock.

Library.—George F. Barker, T. Hewson Bache, Albert H. Smyth, Joseph G. Rosengarten, Edwin G. Conklin.

On motion, these nominations were received and the Society chose those named for membership in the Committees as stated.

The meeting was then adjourned by the presiding officer.

A CONTRIBUTION TO THE BIBLIOGRAPHY OF THE DECLARATION OF INDEPENDENCE.

(Plate V.)

BY I. MINIS HAYS, M.D.

(Read January 19, 1900.)

When the Declaration of Independence was agreed to by the Congress on the afternoon of Thursday, July 4, 1776, it was thereupon

“*Ordered*, That the Declaration be authenticated and printed.

“That the Committee appointed to prepare the Declaration superintend and correct the press.

“*Resolved*, That copies of the Declaration be sent to the several

Assemblies, Conventions and Committees, or Councils of Safety, and to the several Commanding Officers of the Continental Troops; and that it be proclaimed in each of the *United States*, and at the head of the Army" (*American Archives*, 4th Series, Vol. vi, p. 1731; also *Journal of Congress*, 1776, p. 247).

The Declaration, in accordance with the above order, was then authenticated by writing under it "Signed by Order and in Behalf of the Congress, John Hancock, President. Attest, Charles Thomson, Secretary." And the original manuscript was, in all likelihood as I have elsewhere indicated,¹ immediately sent to the printer, since the exigencies of the occasion did not allow of the delay necessary to copy it, either into the rough Journal of the Congress, or for the use of the printer. It was, probably, that same evening put in type and the proof corrected by the Committee which drafted it, and was printed off, as a broadside, early the next morning in time to furnish copies upon the reassembling of the Congress. A printed copy was then wafered in the blank space left for it in the rough Journal of the Congress, before the reading, on the morning of the 5th, of the Minutes of the preceding day.

This broadside constitutes the first edition of the Declaration. It was printed at Philadelphia by John Dunlap, the official printer to the Congress, and the copy wafered in the rough Journal of the Congress is facsimiled in Buchanan's *Genealogy of the McKean Family of Pennsylvania* (Lancaster, 1890), page 38. Copies of this edition are in the Emmet Collection in the New York Public Library (EM. 1528), in the Massachusetts Historical Society's collection and in the Library of Congress. It measures on the print $11\frac{3}{4}$ inches in breadth by 17 inches in length.² This edition corresponds with the first and so-called second editions (Nos. 101 and 102, which are in reality one and the same,) of Mr. Paul Ford's *Bibliography of the Official Publications of the Continental Congress*.

The line for line transcript of the head lines and colophon of this edition is as follows:

In Congress, July 4, 1776 | A Declaration | By the Representatives of the | United States of America, | In General Congress

¹ PROC. AMER. PHILOS. SOC., Vol. xxxvii, p. 102.

² I am indebted for these measurements to the courtesy of Mr. Wilberforce Eames, of the Lenox Library, New York.

Assembled | . . . | Signed by Order and in Behalf of the Congress | John Hancock, President. | Attest. | Charles Thomson, Secretary | Philadelphia: Printed by John Dunlap.

§ Copies of this broadside edition of the Declaration were at once sent, by President Hancock, in accordance with the resolution of the Congress, "to the several Assemblies, Conventions and Committees, or Councils of Safety, and to the several Commanding Officers of the Continental Troops."

The minutes of the Council of Safety of the Province of Pennsylvania for Saturday, July 6, 1776,¹ state that

"The President of the Congress this day sent the following Resolve of Congress, which is directed to be entered on the Minutes of this Board:

"IN CONGRESS, 5th July, 1776.

"*Resolved*, That Copies of the Declaration be sent to the several Assemblies, Conventions, and Councils of Safety, and to the several Commanding Officers of the Continental Troops, that it be proclaimed in each of the United States and at the Head of the Army.

"By order of Congress;

"Sign'd, JOHN HANCOCK, Presid't.

"In consequence of the above Resolve, Letters were wrote to the Counties of Bucks, Chester, Northampton, Lancaster, and Berks, Inclosing Copy of the said Declaration, requesting the same to be publish'd on Monday next, at the places where the Election for Delegates are to be held."²

On the afternoon of the same day the Council of Safety

"*Ordered*, That the Sheriff of Philad'a read, or Cause to be read and proclaimed at the State House, in the City of Philadelphia, on Monday, the Eighth day of July, instant, at 12 o'Clock at Noon of the same day, the Declaration of the Representatives of the United Colonies of America, and that he cause all his Officers and the Constables of the said City, to attend the reading thereof.

"*Resolved*, That every Member of this Committee in or near the City, be ordered to meet at the Committee Chamber, before 12

¹ *Colonial Records*, Vol. x, p. 634.

² In *Penna. Magazine of History*, etc., 1892, Vol. xvi, p. 309, will be found a facsimile of the bill of Michael Kuhn to the Committee of Safety and approved by Owen Biddle, for £11 12, 6 for riding as an express to Chester, Lancaster, Potts-Grove and Bucks in accordance with the above resolve.

o'Clock, on Monday, to proceed to the State House, where the Declaration of Independence is to be proclaimed."

As is well known, the Declaration was read and proclaimed on the 8th by John Nixon, on behalf of William Dewees, the Sheriff of Philadelphia, from the platform of the observatory in the State House Square which had been erected by the American Philosophical Society to observe the transit of Venus in June, 1769.

The printed copy from which it was read, and, presumably, the copy enclosed to the Council of Safety by the President of the Congress, was carefully preserved by Mr. Nixon and is now in the possession of his descendant, Mrs. Charles C. Harrison, of Philadelphia.

A copy of the Declaration was likewise transmitted to General Washington, and we find that on July 9 he sent orders from New York to General Ward to "cause this Declaration to be immediately proclaimed at the head of the Continental Regiments in the Massachusetts Bay" (*Am. Archives*, 5th Series, Vol. i, p. 142) and on the eleventh he wrote to General Schuyler that in obedience to the order of Congress the enclosed Declaration "must be proclaimed throughout the Northern Army" (*ibid.*, p. 194).

Among the "Washington Papers" in the Department of State there is a broadside copy, which Mr. Andrew H. Allen, Chief of the Bureau of Rolls and Library, informs me, is believed to be the copy sent by the President of the Congress to General Washington to be read at the head of the Army.

The Washington and Nixon copies are of the same edition as that wafered in the rough journal of the Congress.

There has recently been found among the unarranged papers of this Society a large and handsome broadside of the Declaration printed on vellum by John Dunlap, whose printing office was in Philadelphia and who was the official printer to the Congress, and to the Council of Safety of the Province of Pennsylvania. This edition appears to be unknown to the bibliographers of the Declaration, and I have been unable to learn of a copy being in any of the principal collections in the country. I am informed by Mr. Andrew Allen that it is not to be found in the Bureau of Rolls and Library of the Department of State at Washington.

The following is a line for line transcript of the head lines of this which appears to be the second edition of the Declaration :

IN CONGRESS, JULY 1868, A DECLARATION BY THE REPRESENTATIVES OF THE UNITED STATES OF AMERICA, IN GENERAL CONGRESS ASSEMBLED.

WE

HEREIN in the Course of human Events, it becomes necessary for one People, to dissolve the Political Bonds which have connected them with another, and to assume among the Powers of the Earth, the separate and equal Station to which the Laws of Nature and of Nature's God entitle them, a decent Respect to the Opinions of Man-

kind requires that they should declare the Causes which impel them to the Separation
We hold these Truths to be self-evident, that all Men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty, and the Pursuit of Happiness.—That to secure these Rights, Governments are instituted among Men, deriving their just Powers from the Consent of the Governed, that whenever any Form of Government becomes destructive of these Ends, it is the Right of the People to alter or to abolish it, and to substitute new Government, laying its Foundation on such Principles, and organizing its Powers in such Form, as to them shall seem most likely to effect their Safety and Happiness. Prudence, indeed, will dictate that Governments long established should not be changed for light and transient Causes; and accordingly all Experiences hath shown, that Mankind are more disposed to suffer, while Evils are sufferable, than to right themselves by abolishing the Forms to which they are accustomed. But when a long Train of Abuses and Usurpations, pursuing invariably the same Object, evinces a Design to reduce them under absolute Despotism, it is their Duty, to throw off such Government, and to provide new Guards for their future Security. Such has been the patient Sufferance of these Colonies, and such is now the Necessity which constrains them to alter their former Systems of Government. The History of the present King of Great-Britain is a History of repeated Injuries and Usurpations, all having in direct Object the Establishment of an absolute Tyranny over these States. To prove this, let Facts be submitted to a candid World.

He has refused his Assent to Laws, the most wholesome and necessary for the public Good.
He has refused his Assent to Acts of immediate and pressing Importance, unless suspended in their Operation till his Assent should be obtained: and when so suspended, he has utterly neglected to attend to them.

He has forbidden his Governors to pass Laws of immediate and pressing Importance, unless suspended in their Operation till his Assent should be obtained: and when so suspended, he has utterly neglected to attend to them.

He has refused to pass other Laws for the Accommodation of large Districts of People, unless those People would relinquish the Right of Representation in the Legislature, a Right inestimable to them, and formidable to Tyrants only.

He has called together legislative Bodies at Places unusual, uncomfortable, and distant from the Depository of their public Records; for the sole Purpose of fatiguing them into compliance with his measures.

He has endeavored to prevent the Population of these States from increasing by refusing his Assent to all Acts for encouraging their Migration, and by cutting off the Trade between them and the World.

For proceeding them, by a black Trial, from Penitence for any Murders which they should commit on the Inhabitants of these Seas;
 For cutting off our Trade with all Parts of the World;
 For imposing Taxes on us without our Consent;
 For depriving us, in many Cases, of the Benefits of Trial by Jury;
 For transporting us beyond Seas to be tried for pretended Offences;
 For abolishing the free System of English Laws in a neighbouring Province, establishing therein an arbitrary Government, and enlarging its Boundaries, so as to render it at once an Example and fit Instrument for introducing the same absolute Rule into these Colonies;
 For taking away our Charters, abolishing our most valuable Laws, and altering fundamentally the Forms of our Governments;
 For suspending our own Legislatures, and declaring themselves invested with Power to legislate for us in all Cases whatsoever.
 He has abdicated Government here, by declaring us out of his Protection and waging War against us.
 He has plundered our Seas, ravaged our Coasts, burnt our Towns, and destroyed the Lives of our People.
 He is, at this Time, transporting large Armies of foreign Mercenaries to compleat the Works of Death, Destruction, and Tyranny, already begun with Circumstances of Cruelty and Perversity, scarcely paralleled in the most barbarous Ages, and totally unworthy the Head of a civilized Nation.
 He has constrained our fellow Citizens taken Captive on the high Seas to bear Arms against their Country, to become the Executioners of their Friends and Brethren, or to fall themselves by their Hands.

He has excited domestic Insurrections amongst us, and has endeavoured to bring on the Inhabitants of our Frontiers the merciless Indian Savages, whose known Rule of Warfare, is an unrelenting Destruction of all Ages, Sexes and Conditions.

In every Stage of these Oppressions we have petitioned for Redress in the most humble Terms: Our repeated Petitions have been answered only by repeated Injury. A Prince whose Character is thus marked by every Act which may define a Tyrant, is unfit to be the Ruler of a free People.

Not have we been wanting in Attention to our British Brethren. We have warned them from Time to Time of Attempts by their Legislature to extend an unwarrantable Jurisdiction over us. We have reminded them of the Circumstances of our Emigration and Settlements here. We have appealed to their native Justice and Magnanimity, and we have conjured them by the Tie of our common Kindred to disavow these Usurpations, which, would inevitably interrupt our Connections and Correspondence. They too have been deaf to the Voice of Justice and of Consanguinity. We must, therefore, acquiesce in the Necessity, which demands our Separation, and hold them, as we hold the rest of Mankind, Enemies in War, in Peace, Friends.

We, therefore, the Representatives of the UNITED STATES OF AMERICA, in General Congress, Assembled, appealing to the Supreme Judge of the World for the Rectitude of our Intentions, do, in the Name, and by Authority of the good People of these Colonies, solemnly Publish and Declare: That these United Colonies are, and of Right ought to be, FREE AND INDEPENDENT STATES; that they are absolved from all Allegiance to the British Crown, and that all political Connection between them and the State of Great-Britain, is and ought to be totally dissolved; and that as FREE AND INDEPENDENT STATES, they have full Power to levy War, conclude Peace, contract Alliances, establish Commerce, and to do all other Acts and Things which INDEPENDENT STATES may of right do. And for the support of this Declaration, with a firm Reliance on the Protection of divine Providence, we mutually pledge to each other our Lives, our Fortunes, and our sacred Honor.

Signed by Order and in Behalf of the Congress,

ATTEST.
 CHARLES THOMSON, SECRETARY.

JOHN HANCOCK, PRESIDENT,

PRINTED BY JOHN DUNLAP.

NOV
OF
1958

In Congress, July 4, 1776 | A Declaration | by the Representatives of the | United States of America | in General Congress Assembled. | . . . | Signed by Order and in Behalf of the Congress | John Hancock, President | Attest | Charles Thomson, Secretary | Printed by John Dunlap. |

It measures on the print $16\frac{1}{8}$ inches in breadth and $21\frac{3}{4}$ inches in length. A written indorsement on this copy states that it was found among the papers of David Rittenhouse, and the entry in the Donation Book of its gift to this Society is that on September 19, 1828, Dr. Mease presented to the Library a copy of the "Declaration of Independence of U. States of Am Printed on Parchment with the attestation of Cha^a. Thomson. Supposed to be printed at the time of Declaration, 4 July 1776 by Jno. Dunlap & found amn^a. the Papers of David Rittenhouse."

It will be recalled that the minutes of July 6, 1776, of the Council of Safety of the Province of Pennsylvania record the receipt of the resolution of the Congress directing the transmittal of the Declaration to the Council, whereupon "letters were wrote to the Counties . . . Inclosing copy of the said Declaration, requesting the same to be publish'd on Monday next [July 8th]."

Since a single¹ copy only of the Declaration had been transmitted by the President of the Congress, it seems probable that the Council of Safety of the Province of Pennsylvania needed additional copies for transmittal to the various Counties, Committees of Safety, etc., in the Province, just as we shall see hereafter did the Council of Massachusetts, and therefore ordered its printer, John Dunlap, to supply them. The type of the original edition in all probability had not been kept standing when Dunlap received this order and he was therefore obliged to set it up anew. He now saw that the document was one of more than usual importance and had it set up in larger and more imposing type. It seems, too, not unlikely that Dunlap at this time, recognizing the high historical value of this document, printed off a copy or two on vellum for purposes of presentation, and that he gave one of these to David Rittenhouse who was a leading member of the Council of Safety and afterwards its Vice-President.

¹ On this point see *Public Records of the Colony of Connecticut*, Vol. xv, 1775-1776, p. 477: "Letters from the Congress of 6th inst. came in (by express) containing information of their late Declaration of Independence and a copy of it, requesting the same to be duly published, etc."

The inference that this edition was printed early in the month of July, 1776, is strengthened by the wording of the title, which was changed to "the Unanimous Declaration," etc., by resolution of the Congress on July 19, 1776, as we shall see more particularly hereafter.

This edition, as regards typography, is beyond comparison the finest of the contemporaneous broadsides of the Declaration. It is fac-similed, reduced in size about one-half, in the accompanying plate (Plate V).

In the *Du Simitière's Scraps*, 1771-1810, in the Philadelphia Library (960 and 962 F), there is another contemporaneous broadside of the Declaration which is also unnoted in the bibliographies. It does not bear any imprint. It measures on the print $10\frac{7}{8}$ inches in breadth and $11\frac{1}{4}$ inches in length. It is in double column, separated by two parallel rules, and at the bottom of the second column it has the printed signature and attestation of John Hancock and Charles Thomson in the same form as in the previous editions noted.

The line for line transcript of the head lines is as follows :

In Congress, July 4, 1776 | A Declaration by the Representa-
tives of the United States | of America, in General Congress
assembled |

With the kind assistance of Mr. Charles R. Hildeburn, I endeavored to identify the printer of this broadside by means of the types used, but without success, although Mr. Hildeburn is strongly inclined to believe that it is a Philadelphia imprint.

John Gill and Powars and Willis, of Boston, jointly appear to have struck off two editions of the Declaration, one without and the other with their imprint. Copies of both of these are in the library of the Massachusetts Historical Society. Neither of them is given in Mr. Ford's *Bibliography*.

John Gill was the publisher of the *Continental Journal*, and Dr. Green writes me that this broadside "was undoubtedly printed in July, 1776, as a copy in finer type appears in his paper of July 18. Powars and Willis were also publishers of another paper, the *New England Chronicle*, in Queen Street." The edition without their imprint, Dr. Green informs me, "was struck from the same form [as the one with their imprint] with the texts of the same dimen-

sions and the heading with fewer leads." It seems to me most probable that the edition without their imprint was struck off first, and then finding that there was a demand for the broadside they struck off another edition, to which they added their imprint and improved its appearance by inserting additional leads between the head lines.

The edition without their imprint is in double column and measures on the print $11\frac{1}{8}$ inches in breadth by $15\frac{5}{8}$ inches in length. A copy of it is to be found in the library of the Massachusetts Historical Society, and of the Essex Institute at Salem. It is reproduced in facsimile in Bryant and Gay's *Popular History of the United States*, New York, 1879, Vol. iii, p. 482.

The other edition, with the added imprint of John Gill and Powars and Willis, is reproduced in facsimile in Winsor's *Narrative and Critical History of America*, Vol. vi, p. 267. It is likewise in double column and measures on the print $11\frac{1}{8}$ inches in breadth by $17\frac{5}{8}$ inches in length. The line for line transcript of the head lines and colophon is as follows :

In Congress, July 4, 1776 | A Declaration | by the Representatives of the | United States of America ; | In General Congress Assembled. | . . . | America : Boston, Printed by John Gill, and Powars and Willis, in Queen Street.

A peculiarity of the Gill and Powars and Willis editions is that in the attestation Charles Thomson's name is spelt with a "p."

A contemporaneous edition was also printed by E. Russell at Salem, in Massachusetts, which corresponds with Ford's No. 103, and of which torn and imperfect copies are in the Emmet Collection, in the New York Public Library (EM. 1532) and in the Library of the Massachusetts Historical Society. Dr. Green informs me that this broadside measures on the print $12\frac{5}{8}$ inches in breadth by $18\frac{7}{8}$ inches in length.

The line for line transcript of the head lines and colophon of this edition is as follows :

In | Congress, | July 4, 1776 | A Declaration | by the | Representatives | of the | United States of America, | In General Congress Assembled. | . . . | Salem, Massachusetts-Bay : Printed by E. Russell ; by Order [torn].

Dr. Green writes me that in the copy of this broadside possessed by the Massachusetts Historical Society "the Declaration is followed by an Order, in six lines, attested by 'John Avery D' [torn]." "The tear in the lower right-hand corner takes up one-half of the width of the broadside, and about one-quarter of its length." The order is that of the Council of Massachusetts, dated July 17, 1776, directing that the Declaration of Independence be printed, and that the minister of each parish read the same on the ensuing Sunday. John Avery, who signed this order, was the Deputy Secretary of the Council of Massachusetts, and in a letter to Sheriff Greenleaf, dated "Council Chamber, August 5, 1776," he says: "I am directed by the honorable Committee of Council to acquaint you that the printed Declarations of Independency are on their table, and they expect that you will take proper care that they be distributed through this State as soon as may be, that every town may have them publicly read in each religious assembly" (*Am. Archives*, 5th Series, Vol. i, p. 778).

Mr. Ford gives as No. 104 of his "Bibliography" an edition of which I have been unable to locate a copy. He states that it measures 15 inches x 19½ inches. The line for line transcript he gives as follows:

In Congress, July 4, 1776, | Declaration | By the Representatives of the | United States of America | In General Congress Assembled

Mr. Ford writes me that he cannot now recall where he saw this broadside, but his impression is that it was at an auction in Boston some eight or nine years ago and that he made the memorandum concerning it at that time.

The *Journals of Congress* state (Vol. ii, Phila., 1776, p. 241) that "the Declaration being read, was agreed to, as follows:

"A Declaration by the Representatives of the United States of America in Congress assembled." It will be noticed that in the first editions previously referred to the word "general" has been interpolated before "Congress" in the title, so as to read, "in General Congress assembled," and in Dunlap's second edition and the others prior to the Baltimore edition of the following year the interpolation is retained. For this alteration in the title to the

Declaration I can find no authority in the printed *Journal* of the Congress.

On July 19, 1776, the Congress "*Resolved*, That the Declaration passed on the 4th be fairly engrossed on parchment, with the title and style of—"The Unanimous Declaration of the 'Thirteen United States of America ;' and that the same, when engrossed, be signed by every member of Congress" (*Secret Journals of the Acts and Proceedings of Congress*, Vol. i, Boston, 1821, p. 48), and on August 2, the *Secret Journal* states that, "The Declaration of Independence being engrossed, and compared at the table, was signed by the members."

On January 18, 1777, the Congress "*Ordered*, That an authenticated copy of the declaration of independency, with the names of the members of Congress, subscribing the same, be sent to each of the United States, and that they be desired to have the same put upon record" (*Journal of Congress*, Vol. iii, Philadelphia: John Dunlap, p. 28).

The next official edition of the Declaration was printed under the above resolution at Baltimore, whither the Congress had adjourned from Philadelphia on December 12, 1776 because of the advance of the British troops and their subsequent occupation of that city. Copies of this edition are to be found in the Emmet Collection in the New York Public Library (EM. 1535) and in the Boston Public Library. It corresponds with No. 105 of Mr. Ford's Bibliography. This broadside measures on the print $12\frac{1}{4}$ inches in breadth by $19\frac{5}{8}$ inches in length and is facsimiled in *The Orderly Book of Sir John Johnson*, Albany, 1882, p. 220. The line for line transcript of the head lines and colophon are as follows :

In Congress, July 4, 1776, | The Unanimous | Declaration | of
the | Thirteen United States of America |

The text is printed in double columns, and the signatures of the members are appended, with that of John Hancock in the centre of the top line and the others being arranged beneath in four parallel columns, the members signing by States, with Georgia first. Their signatures are included in a bracket placed to the left with the name of the State they represent opposite. Then follows the text of the resolution of January 18, 1777, and signed

By order of Congress | John Hancock, President |

Then in manuscript is written on the copy fac-similed in the *Johnson Orderly Book* :

Attest : Chas. Thomson, Sec'y. | A True Copy | John Hancock,
Presid't. |

The colophon is :

Baltimore, in Maryland : Printed by Mary Katharine Goddard |

A very valuable bibliography of the literature pertaining to the Declaration, including its signers, signing and promulgation, prepared by Mr. Wilberforce Eames, the accomplished Librarian of the Lenox Library, is to be found in the *New York Public Library Bulletin*, Vol. i, December, 1897, pp. 351, 352.

DIVISIONS OF THE SOUTH AUSTRALIAN ABORIGINES.

WITH MAP.

(Plate VI.)

BY R. H. MATHEWS, L.S.

(Read January 19, 1900.)

The territory dealt with in the following pages comprises approximately that part of the province of South Australia situated east of the 132d meridian of longitude and south of the 24th parallel of latitude, but is more particularly delineated on the accompanying map. All the native tribes within this immense region are divided into two intermarrying phratries, with the exception of some tribes on the Murray river and Yorke's peninsula, among whom no well-defined divisional system has been reported.

I shall endeavor in this article to determine the boundaries of the country occupied by certain aggregates of tribes possessing the same divisional names and practicing similar initiatory rites, which it is proposed to denominate nations, following the method adopted by me in showing the distribution of the native tribes of New South Wales,¹ Victoria² and Queensland.³ A map is added, on

¹ PROC. AMER. PHILOS. SOC. PHILADA., xxxvii, 54-73, Plate v.

² *American Anthropologist*, Washington, xi, 325-343, Plate v.

³ PROC. AMER. PHILOS. SOC. PHILADA., xxxvii, 327-336, Plate xiii.

which is marked the geographic range of each nation and defining also the limits within which circumcision and subincision are in force.

I. THE PARNKALLA NATION.

In 1846 the Rev. C. W. Schürmann published a pamphlet on the *Aboriginal Tribes of Port Lincoln, South Australia*, in which, on p. 9, he stated that the Parnkalla tribe was "divided into two distinct classes, the Mattiri and Karraru people. . . . If a husband be Mattiri, his wife must be Karraru, and *vice versa*, the children taking invariably the appellation of that class to which their mother belongs." This is the first accurate record of the divisions of aboriginal tribes, not only in the colony mentioned, but in any part of the Australian continent. Owing to this priority and for convenience of reference I have adopted the name of the Parnkalla tribe for the whole nation. I shall endeavor to give the names and territorial limits of a few of the most important of the many tribes of which this large nation is composed.

The Rev. Mr. Schürmann says¹ the Parnkalla language extended "from Port Lincoln probably as far as the head of Spencer's Gulf," which would be about where Port Augusta now stands, and that "northeast of the Parnkalla was the Nukunna tribe." The Nauo, or Nowo, tribe adjoined the Parnkalla on the west² and inhabited the country from Venus Bay to Koppawanata station. Northwest of the Nauo, around Yardea station, was the country of the Willeuroot tribe. The Parnkalla, Nauo and Willeuroo, were practically the same people in language and customs, and are included in the same nation on the map. I am informed by old residents that a small tribe called Kooapudna was formerly located around Franklin Harbor. These people are not mentioned by Mr. Schürmann.

Mr. B. Hack states that a tribe, which he calls Noocoona, occupied the eastern side of Spencer's Gulf, from Port Augusta to Bundalear (see map) and extended east to Coonatto.³ As the Noocoona of Mr. Hack were located in the country indicated by Mr. Schürmann as being inhabited by the Nukunna, it seems safe to infer that both writers meant the same people; for although the spelling is different the pronunciation is substantially the same.

¹ *Native Tribes of South Australia* (1879), p. 249.

² *Ibid.*, p. 249.

³ *Folklore, Manners, etc., S. A. Aborigines* (1879), pp. 64-66.

Mr. Noble, a police trooper, in describing the customs of the Alury tribe of the Flinders Range,¹ says they were divided into "two clans," called Muttay and Arree, which I have assumed are intended to represent Mattiri and Karraru of the Parnkalla divisions. Mr. Noble includes "Crystal Brook and surrounding country" in his description, which would overlap and include the territory of the Noocoona tribe above referred to. This suggests the inference that the Alury and Noocoona were subtribes of the same people.

The Kooyeeunna and some smaller allied tribes occupy the country from South Lake Eyre, including Turret Range, Chambers creek, Screech-Owl creek, and others, to Lake Torrens, and southerly along its eastern shore as far as Nilpena station, where they adjoin the Alury already mentioned. A friend of mine who resided a long time on Willochra creek, in the heart of the country occupied by the Alury tribe, says their proper name is Eeleeree. He states that they are divided into the two groups, Mattiri and Karraru, like the Hillary people, who are their near neighbors on the western side of Lake Torrens. Both tribes circumcise and split the penis of the youths, and their language has many words in common. The Kooyeeunna extend northeasterly to meet the Dieyerie; and on the southeast they are joined by the Kutchnamootha and friendly tribes, who are spread over the district from Mount Freeling to Lake Frome and Lake Blanche.² East of the Kutchnamootha is inhabited by the Pulladapa tribe, including the country adjacent to Lake Callabonna, and thence toward the New South Wales boundary.

Adjoining the Kooyeeunna and Kutchnamootha, and reaching northerly, beyond Cooper's creek, is the territory of the Dieyerie tribes. Their eastern boundary is approximately a line drawn from Mount Freeling, through Lakes Blanche and Hope, to Lake Perigundi.³ From the debouchure of the Diamantina river into Lake Eyre, up that river to Goyder's Lagoon, taking in Kalamurina, Cowarie, Mungarane and Berlino stations, is inhabited by the Ahminnie tribe. Beyond the Ahminnie is the Wonka-

¹ *Folklore, Manners, etc., S. A. Aborigines* (1879), p. 64.

² Mr. E. M. Curr, in his book, *The Australian Race* (1886), refers to these two tribes, whom he calls Cooyiannie and Kudnamietha. Vol. ii, p. 118.

³ Compare with description given by S. Gason in his *Dieyerie Tribes of Aus. Aborigines* (1874), p. 11.

oora tribe, occupying the country from Macumba river nearly to Alton Downs. The southern end of their country is watered by the Macumba river and the lower portion of Kallakooa creek. North of the Wonkaoora is the Wonkamudla tribe, reaching from Alton Downs to Annandale and other stations.

The Wonkaoora and Wonkamudla tribes extend a long way to the northwest into the desert country, consisting of sandhills, with sterile patches and salt marshes between them. The only water in this tract is obtained from native wells, called *mickeries*, and the natives of that district are on this account known as "the mickerie blacks." These wells are for the greater number shallow holes, little more than "soakages," and generally contain only small supplies of water, but a few of them are as much as twenty feet deep, or more, being wide at the top and tapering almost to a point at the bottom, into which the water percolates through the loose strata.

Adjoining the Wonkaoora on the southwest are the Arrabunna people, who inhabit the country from near the Macumba southerly along the western side of Lake Eyre as far as Margaret creek, where they adjoin the Kooyeeunna tribe already mentioned. The Arrabunna extend up the Neale and Peake creeks till met by the Andigarina people; toward the southwest they reach to Stuart's Range, where they adjoin the outposts of the Kookatha nation. Touching the Kooyeeunna about Red Lake, and extending thence southerly down the western side of Lake Torrens is occupied by the remnants of the Hillary, Kakarrura, Yallingarra and other friendly tribes, meeting the northern limit of the Parnkalla and Nauo before referred to. I propose calling this tract of country the Hillary Nation, after the Hillary tribe, mentioned by Mr. J. Bryant in 1879.¹

In all the principal tribes or aggregates of subtribes and families, whose boundaries are outlined in the preceding pages and enumerated on the appended map as 1 to 10, the people are bisected into the phratries, Matturri and Kirraroo,² the men of the one marrying the women of the other. No previous writer has attempted to define the geographic distribution of all the people possessing this organization, and show the correct relative location of each tribe on a map of South Australia. The collection of

¹ *Folklore, Manners, etc., S. A. Aborigines* (1879), p. 103.

² I have adopted these forms of the Phratry names, because they are used by the Kooyeeunna tribe, who are located near the centre of the nation.

reliable data, from which to prepare such a map, has been the result of long and patient inquiry extending over some years.

The following synopsis shows how the two phratries intermarry and the descent of the resulting offspring :

TABLE NO. 1,

<i>Phratry.</i>	<i>Husband.</i>	<i>Wife.</i>	<i>Offspring.</i>
A	Kirraroo,	Matturri,	Matturri.
B	Matturri,	Kirraroo,	Kirraroo.

All the people, men and women alike, bear the name of an animal or some other natural object, which is their totem. I have noticed that certain totems which belong to one phratry in a given district are found to belong to the other phratry among the members of a tribe occupying a different part of the country. Similar differences have been observed by me among the native tribes of New South Wales, Queensland and Victoria. Therefore, in supplying a few lists of some of the totems attached to the two phratries—Kirraroo and Matturri—the name of the tribe will be mentioned in each case. I will take the totems of the Arrabunna tribe first.

The undermentioned totemic names may be enumerated as some of those belonging to the people comprising the Kirraroo group :

Emu,	Rainbow,	Diver,
Mopoke,	Scrub Turkey,	Bull-dog Ant,
Fish,	Gum Tree,	Crane,
Common Fly,	Top-knot Pigeon,	Moon,
Sun,	Clouds,	Sandalwood Tree,
Rain,	Lightning,	Barley Grass,
North Wind,	Thunder,	Acacia,
Nardoo,	Crow,	Carpet Snake,
Hailstones,	Opossum,	Spoonbill,
Box Tree,	Pelican,	Beefwood Tree,
Needle Bush,	Mimosa,	Green Snake.

Among the totems of the people constituting the Matturri group may be mentioned the following :

Wild Dog,	Eagle Hawk,	Small Lizard,
Spider,	Common Magpie,	Brown Snake,
Curlew,	Black Duck,	Whip Snake,
Swan,	Frog,	Kangaroo Rat,
Grasshopper,	South Wind,	Wattle Tree,
Quandong Tree,	Shag,	Ring-neck Parrot,
Iguana,	Quartz Stone,	Mulga Tree.
Plain Turkey,		

II. THE YOWERAWARRIKA NATION.

The Yowerawarrika tribe adjoin the Dieyerie Ahminnie, Wonkaora and Wonkamudla on the east, and reach northerly and easterly into Queensland. Their territory includes Coongie, Clifton Hills, Pandy Pandy and Cordilla Downs. Adjoining the Yowerawarrika on the south are the Yanderawantha, who reach from Patchawarra creek southerly across the Cooper and down the Strzelecki creek till they meet the northern limit of the Pilladapa about Lake Callabonna. On the west they are bounded by the Dieyerie, and on the east they extend within the Queensland and New South Wales frontier. Innamincka, Tinga Tingana, Kanowinna, Oontoo and other stations, are situated within the territory of this tribe.

The social organization of the Yowerawarrika and Yanderawantha consists of two intermarrying phratries called Koolpirro and Thinnawa; a Koolpirro man marries a Thinnawa woman, and, *vice versa*, the sons and daughters of the marriage taking the name of the group to which the mother belongs. Arranged in tabular form these rules of marriage and descent appear as follows:

TABLE NO. 2.

<i>Phratry.</i>	<i>Husband.</i>	<i>Wife.</i>	<i>Offspring.</i>
A	Koolpirro,	Thinnawa,	Thinnawa.
B	Thinnawa,	Koolpirro,	Koolpirro.

There is a collection of totems attached to each phratry. The following are some of the totems of the Koolpirro people:

Carpet Snake,	Rainbow,	Rat,
Red Ochre,	Pigface,	Native Companion,
Crow,	Emu,	Curlew.
Kite-hawk,	Pituri.	

The Thinnawa division claims the undermentioned animals and objects amongst others :

Iguana,	Eaglehawk,	Plain Turkey,
Bull-Frog,	Shag,	Black Duck,
Jew Lizard,	Dingo,	Plover,
Witchetty,	Native Cat,	Crane,
Ground Frog,	Kangaroo Rat,	Diver.
Water Rat,		

The phratry name Koolpirro is the equivalent of Kurraroo, and Thinnawa corresponds to Matturri of the Parkalla organization. Koolpirro is likewise equivalent to the pair of sections Woongo and Koobaroo, and Thinnawa to the pair, Bunburri and Koorgilla, of the tribes adjoining them on the northeast.

III. THE BARKUNJEE NATION.

The divisional system and initiation ceremonies of the tribes constituting this nation have been fully reported in my paper published in the *Journal of the Royal Society of New South Wales*, Vol. xxxii, pp. 240-255.

IV. THE ADJADURAH NATION.

The Adjadurah tribe occupied Yorke Peninsula, a long tongue of land lying between St. Vincent and Spencer Gulfs and reaching north as far as Crystal brook. Mr. McEntire says these natives were more similar to the Adelaide tribe than any other; and Mr. E. M. Curr states that the language of the Adelaide blacks resembled that of those occupying Yorke Peninsula more than the language of the natives of the Murray river. I have compiled the following comparative vocabulary of twenty-four words used by both tribes, selected from four different authors—Teichelmann and Schürmann,¹ Edward Stevens,² E. McEntire³ and E. M. Curr.⁴

¹ *Grammar and Vocabulary of Aboriginal Language Spoken by Natives of Adelaide* (1840), pp. 1-176.

² *Jour. Roy. Soc. N. S. Wales*, xxiii, 498-501.

³ *Folklore, Manners, etc., S. A. Aborigines* (1879), p. 63.

⁴ *The Australian Race* (1886), ii, 146, 147.

English.	Teich. and Sch. Adelaide.	E. Stevens. Adelaide.	E. McEntire. Y. Peninsula.	E. M. Curr. Y. Peninsula.
Kangaroo	Nanto	.....	Munthu	Nantoo
Opossum	Pilta	Pilta	.....	Bilta
Dog	Kadli	Cudlee	Kuddelee	Kadle
Emu	Kari	Curree	.....	Garrie
Crow	Kua	.....	.....	Gooa
Swan	Kudlyo	.....	.....	Guldyyo
Fish	Kuya	Cooyar	Kooya	Guya
Egg	Muka	.....	.....	Mokka
Head	Makarta	.....	Kukaa	Kakka
Nose	Mudla	Meedla	Mudla	Mudla
Eye	Mena	Meena	Midna	Minni
Teeth	Tia	.....	Teeya	Tea
Hand	Marra	Moora	Murra	Mirra
Foot	Tidna	Tidna	Thidna	Didna
Breasts (female)	Ngammi	Umme	.....	Ammie
Blood	Karro	.....	Gerra	Garro
Excrement	Kudna	.....	.....	Goodnarie
Reed Spear	Kaya	.....	.....	Giea
Fire	Gadla	.....	Kudla	Gurdla
Smoke	Puiyu	.....	.....	Booyoo
Sun	Tindo	Tindoo	Deento	Tintoo
Moon	Kakirra or Piki	Cackera	Bigha	Birra
Star	Purle	.....	Boorlee	Burlic
Die or Dead	.....	Moorloona	Barloona	Barluna

Besides the affinity of their speech, the Yorke Peninsula and Adelaide natives had many customs in common. Mr. E. M. Curr, Mr. E. McEntire and Mr. T. M. Sutton report that circumcision was practiced on Yorke Peninsula, and the last-named author mentions the use of a bullroarer.¹

Teichelmann and Schürmann state that in the Adelaide tribe a youth was called *Pappa* after being circumcised; *Turlo* was the name of the circumcisor; and the being who first taught the rite to their ancestors was named *Yura*, who also punished those who neglected to carry it out. He further says that a bullroarer called *Kadnamangutta* was employed in the ceremony. It was a thin, oval piece of wood, five inches long and an inch and a half wide, tied to a

¹ *Proc. Roy. Geog. Soc., S. A. Bch.*, Vol ii, 3d series, p. 17.

string, by which the natives swung it rapidly round, causing a humming noise. Females and children were not allowed to see it.

Mr. G. F. Angas reports that circumcision was in vogue among the Wirramayo tribe, who occupied the vast scrub country to the northwest of the river Murray, and that an instrument called *Wittoo Wittoo*, an oval piece of wood fastened to a string of human hair, was whirled round with great rapidity, producing a loud, roaring sound.¹

Owing to the similarity of the dialects of the Yorke Peninsula and Adelaide tribes, the prevalence of circumcision and other customs, together with the fact of their being adjoining neighbors, seems to me to justify the assumption that they were practically the same people. I have therefore included these two tribes in one nation. Mr. McEntire and Mr. Sutton say that in the Yorke Peninsula tribe the children followed the father. Having read all that both these writers have to say on the subject, I am nevertheless of opinion that the descent of the children depended directly on the mother, being led to this conclusion by inquiries I have made from old residents of that part of the country and from natives of adjacent tribes. Whether or not they were divided into two intermarrying phratries, like the nations to the north and west of them, appears to have escaped the notice of early investigators.

V. THE NARRINYERI NATION.

The tribes composing this nation have been dealt with in my article on "The Victorian Aborigines,"² so that a brief reference will be sufficient in the present treatise. Their territory was chiefly in South Australia, but extended a little way into the adjoining colonies of New South Wales and Victoria. Their southern limit was Lacedpede Bay, whence they reached along the coast to Cape Jervis and up the Murray river almost to the junction of the Darling (see map). They did not practise circumcision, and their language differed from that of their neighbors. The Rev. G. Taplin, who is the most experienced of the early writers on the customs of these people, gives no group divisions, and says descent was counted through the father.³ In the Barkunjee and Booandik tribes, who

¹ *Savage Life in Australia and New Zealand*, Vol. i, p. 99.

² *American Anthropologist* (Washington), xi, 336-343.

³ *Folklore, Manners, etc., S. A. Aborigines* (Adelaide, 1879), p. 157.

adjoin the Narrinyeri, the descent is on the mother's side, although they marry into the phratry of the father, and the children are brought up in his tribe.

VI. THE BOOANDIK NATION.

More than three-fourths of the entire area of this nation is situated on the other side of the boundary between South Australia and Victoria, and their social organization has been described in my paper on the aborigines of the latter colony.¹ I wish to repeat here, however, that the community is divided into two intermarrying phratries, called Krokitch and Kamatch. If a man belongs to the Krokitch division his wife must be taken from among the Kamatch people, and *vice versa*—the children taking the name of the phratry to which their mother belongs.

VII. THE KOOKATHA NATION.

Lying to the west of the Parnkalla, Hillary and Arrabunna Nations, the country is occupied by several tribes, including the Kookatha, Geebera, Wurrunga, Yilrea, Warnabinnie and some others. This aggregate of people will be designated the Kookatha Nation, and the following is a brief outline of the geographic distribution of the different tribes composing it.

The Kookatha tribe extends from the Stuart Range, taking in Lake Phillipson, Mount Eba Station, Wilgena Station, Mount Finke and Lake Bring. The Geebera people are on the north of Lake Gairdner. Between the Gawler ranges and the head of the Great Australian Bight we encounter the Wurrunga, Yilrea, Warnabinnie and other tribes, inhabiting the coastal districts. The people of the interior are more friendly among themselves than with the coast people, and speak a slightly different dialect. They all mix together, however, in their great corrobories, and have similar ceremonies of circumcision, subincision and the enlargement of the vaginal orifice. The coast tribes do not extract a front tooth from the upper jaw of the males, but this custom prevails all over the back country.

In the Geebera tribe, and for a long way westward of them, the two intermarrying phratries are designated Kookoojiba and Koocheebinga, and the resulting offspring take the name of their

¹ *American Anthropologist*, xi, 331-336.

mother's phratry, which may be exemplified in tabular form as under :

TABLE NO. 3.

<i>Phratry.</i>	<i>Husband.</i>	<i>Wife.</i>	<i>Offspring.</i>
A	Kookoojiba,	Koocheebinga,	Koocheebinga.
B	Koocheebinga,	Kookoojiba,	Kookoojiba.

Among the coastal tribes, in order to prevent consanguineous marriages, the chief old men appoint certain women to be *uumree* to certain young men, and the men thus selected are also *uumree* to these women. This can be illustrated by supposing that a woman who is *uumree* to a certain man has a son and a daughter. The man, who may be called A, who is also *uumree* to her, takes her daughter as his wife, and if he himself has a sister he is supposed to give her to the woman's son, who would, of course, be his wife's brother. Then the man A and his wife's brother would become what the natives call *maratho*, which signifies that they must always assist one another in time of danger. A man and woman who are *uumree*, therefore, stand in the relationship of son-in-law and mother-in-law. They never speak to one another as long as they live, and avoid looking at each other if possible, yet remaining the best of friends.

Female children are betrothed in their infancy to such of the males as may be entitled to claim them as their wives in accordance with the laws of the tribe. A man is supposed to contribute something in the way of food to his future wife, until she is old enough to go and cohabit with him.

Where the law permits, women who have very dark hair and complexions are appointed *uumree* to men whose complexions and hair are lighter, and *vice versa*. This distinction in the color is also apparent in the betrothals, a lighter girl being betrothed to a darker boy, and a darker girl to a lighter boy. In all cases, however, the parties who are *uumree*, and also those who are betrothed, must belong to opposite phratries.¹

The tribes who adjoin the Kookatha nation on the west are substantially the same people in language and customs, and extend onwards into western Australia. Commencing about Israelite Bay

¹ The Parnkalla divisions, Kirraroo and Maturri, are known at least as far west as Murat Bay, owing to the intermarriage of the people of the two nations.

and extending a considerable distance westerly and northerly along the coast of western Australia, the tribes are divided into two intermarrying phratries¹ called Munnichmat and Wartungmat, with groups of totems attached to each, particulars of which will be given in another article.

VIII. THE ANDIGARINA NATION.

Bounding the Arrabunna on the northwest are the Andigarina and friendly tribes, occupying the country up the Alberga river to the Musgrave range, and onward to the Petermann ranges and Lake Amadeus, where they meet the Loochidgee tribe. The Andigarina and Loochidgee are divided into four sections, called Koomara, Panungka, Bultara and Parulla, particulars of whose intermarriages have been dealt with by me elsewhere.² This organization, with some modifications in the names of the sections, and in the order of their intermarriage, extends westward across the colony of western Australia to the Indian Ocean.³

Lying northward of the Andigarina, and adjoining also the Wonkaora and Wankamudla referred to in a previous page, is the Arrinda tribe, occupying the country at Macumba, Dalhousie, Charlotte Waters and the Lower Finke river, and stretching northeasterly a considerable distance. They have the same four sections as the Andigarina, and their rules of intermarriage and descent are identical. The Arrinda and Andigarina people have a similar language.

Northeasterly of the Arrinda are the Yorrawinga and friendly tribes, located on the Field, Woodroffe and Georgina rivers. They

¹ Divisions on the same principle, but differing in the names of the phratries, are also found on the northeast coast of Queensland, between Cardwell and Cape Melville. In some places the names are Koorabunna and Kooragoola—in others Darboo and Tooar—in others Chunna and Jaypar, and so on.

² *PROC. AMER. PHILOS. SOC. PHILA.*, xxxviii, 79.

³ Among the Weedokarry tribe in western Australia, the following table shows the names of the four sections and their rules of intermarriage and descent :

<i>Phratry.</i>		<i>Husband.</i>	<i>Wife.</i>	<i>Offspring.</i>
A	{	Butcharrie,	Burronga,	Banaka.
		Kurrimurra,	Banaka,	Burronga.
B	{	Burronga,	Butcharrie,	Kurrimurra.
		Banaka,	Kurrimurra,	Butcharrie.

have four intermarrying divisions named as follow: Koomara, Belthara, Gaballa and Deringera.

Adjoining, but farther to the northward than the Andigarina, Loorudgee, Arrinda and Yorrawinga people, are a number of tribes who are distinguished by having eight intermarrying divisions, instead of two, or four, as in the communities herein described. This eight-section organization extends northerly to the Gulf of Carpentaria and Cambridge Gulf, and will be dealt with in another article.

The language spoken by the Arrinda and allied tribes, and reaching a long way into the eight-section system, has been ably studied and explained by the Rev. H. Kempe.¹

EXPLANATION OF THE MAP.

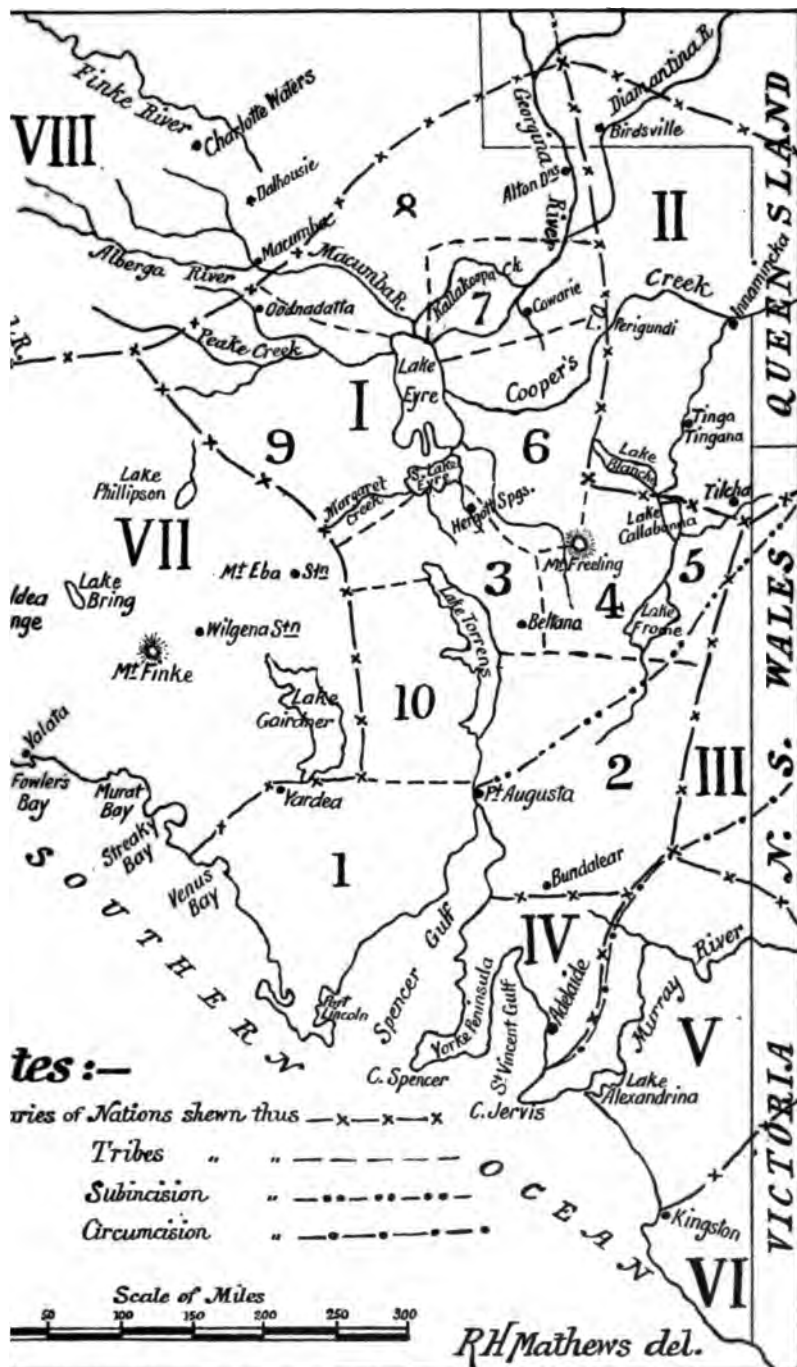
I. The Parnkalla Nation.—This is the largest nation in South Australia, occupying a territory of upwards of 700 miles in length, by a maximum width of 300 miles. In consequence of the immense tract occupied, it has been thought advisable to locate on the map certain communities, consisting of one or more of the tribes constituting the nation. These communities are represented as Nos. 1 to 10 on the map, and are all divided into the two phratries, Matturri and Kirraroo, already explained. The names of some of the principal tribes in each community are as follow: No. 1, Parnkalla, Nauo, Willewroo and Kooapidna tribes. No. 2, Nookoona and Eeleeree. No. 3, Kooyeeunna and others. No. 4, Kutchnamootha. No. 5, Pilladapa. No. 6, Dieyerie. No. 7, Ahminie. No. 8, Wonkaoora and Wonkamudla. No. 9, Arrabunna. No. 10, Hillary, Kakarraru and Yallingarra tribes.

II. The Yowerawarrika Nation.—The principal tribes composing this nation are the Yowerawarrika, Yandrawontha, Wonkamurra, Mullinchie, Kullally and others.

III. The Barkunjee Nation, extending into New South Wales, has two intermarrying phratries, Muckwarra and Keelparra, and the offspring belong to their mother's division.

IV. The Adjadura Nation, comprising the tribes on Yorke Peninsula and around the district of Adelaide.

¹ "A Grammar and Vocabulary of the Language Spoken by the Aborigines of the MacDonnell Ranges, South Australia," *Trans. Roy. Soc. S. Australia*, Vol. xiv, pp. 1-54.



Map showing Divisions of South Australian Aborigines.



V. The Narrinyeri Nation.—This and the next following nation, VI, have been described by me in *The American Anthropologist*, Vol. xi, pp. 331–343.

VI. The Booandik Nation, reaching into Victoria. There are two phratries, Krokitch and Kamatch, the men of the one marrying the women of the other.

VII. The Kookatha Nation.—The principal tribes are the Kookatha, Wirrunga, Yilrea, Warnabirrie and others.

VIII. The Andigarina Nation, consisting of the Andigarina, Loorudgee and Arrinda tribes, with four intermarrying divisions, as explained in the text of this paper. To show the wide geographic range of this system, it is interesting to notice that on the Batavia river, in the extreme north of Queensland, the Joongoonjee tribe is divided into two intermarrying phratries, called Chamagunda and Gamanutta; the former is subdivided into two sections, named Langename and Namegoore, and the latter into two, called Packwicki and Pamarang. The children of both sexes belong to the same phratry as their mother.

There are no feminine equivalents for these section names, but each phratry has a collection of totems, which the natives call *edeet*, some of which are the emu, dingo, rock, bamboo, wood, crow, fire, kangaroo, carpet-snake, sea, shark, sun, black-duck, rat, pigeon, fresh water.

The reader's attention is invited to a line (see map) from Port Augusta, passing east of Lake Frome and entering the New South Wales boundary south of Tilcha. All the tribes to the west, northwest and north of this line practice the rite of splitting the penis in addition to that of circumcision. There is a belt of country, including Yorke Peninsula, Adelaide, Bundalea, and extending into New South Wales, in which circumcision only is in force; the southeastern limit of this tract is also delineated upon the map as far as the New South Wales boundary. From the latter point onward, through the Australian Continent to the Gulf of Carpentaria, the position of the line separating the tribes who practice circumcision and splitting the penis from those among whom neither custom is in vogue, is defined on maps accompanying contributions by me to different societies.¹

¹ *Journ. Roy. Soc. N. S. Wales*, xxxii, 240–255, Pl. xii; *PROC. AMER. PHILOS. SOC. PHILA.*, xxxvii, 327–336, Pl. xiii.

Stated Meeting, February 2, 1900.

Present, 28 members.

Vice-President BARKER in the Chair.

A letter was read from Dr. Samuel G. Dixon, presenting, on behalf of a few friends of the late Dr. Joseph Leidy, a portrait of him, by Mr. James L. Wood, copied from that by Mr. Bernard Uhle, in the Academy of Natural Sciences of Philadelphia.

On motion the best thanks of the Society were ordered to be transmitted to Dr. Dixon and the other friends of the late Dr. Leidy, to whom this Society is indebted for this valued gift.

The deaths of Dr. William A. Hammond, Surgeon-General U. S. A., retired, and of S. Dana Greene, of New York, members of the Society, were announced.

Vice-President Barker delivered the Annual Discourse.

Stated Meeting, February 16, 1900.

Present, 21 members.

A letter was read from Mr. R. H. Mathews, mentioning a tour he had recently made amongst the aborigines of western Australia.

The deaths were announced of the Hon. John B. Stallo, at Florence, Italy, and of William Henry Green, D.D., at Princeton, N. J., members of the Society.

Mr. Wilcox exhibited a specimen of andalusite from California, and spoke in regard to the formation of the mineral.

Dr. Morris spoke in relation to the changes of glass in New Mexico and elsewhere, which was discussed by Messrs. Wilcox, Wistar, Greene and Sachse.

The Society then proceeded to the election of members, and the Tellers announced the election of

Thomas George Morton, M.D., of Philadelphia.

William Aldis Wright, LL.D., of Cambridge, England.

The Society was then adjourned by the presiding officer.

Stated Meeting, March 2, 1900.

Vice-President BARKER in the Chair.

Present, 17 members.

Dr. Thomas George Morton and Mr. J. Rodman Paul, newly elected members, were presented to the Chair, and took their seats in the Society.

Letters were received from Dr. Thomas George Morton and Dr. Frederick W. True, acknowledging their election to membership, and accepting the same.

The list of donations to the Library was laid on the table, and thanks were ordered for the same.

The meeting was adjourned by the presiding officer.

Stated Meeting, March 16, 1900.

Vice-President WISTAR in the Chair.

Present, 8 members.

Letters accepting membership in the Society were read from Hugo A. Rennert, Gustav Schlegel, Charles D. Sigsbee and William Aldis Wright.

Letters were also read from the President of the International Congress of Colonial Sociology, to be held at Paris during 1900, and from the Committee of Organization of the International Geological Congress, to be held at Paris in August, 1900, in the latter case inviting the Society to appoint one or more delegates to the Congress.

On motion, the President was authorized to appoint one or more delegates from this Society.

The Librarian reported the receipt of a medal struck in honor of Sir George Stokes on the occasion of his recent anniversary.

He also presented from Sir Richard Tangye an autograph letter of Benjamin Franklin to Samuel Huntington, President of Congress.

Communications entitled "Descriptions of Some Vertebrates of the Carboniferous Age," by O. P. Hay, of the American Museum of Natural History, and "Native Tribes of Western Australia," by R. H. Mathews, were presented. The Society was then adjourned by the presiding officer.

DESCRIPTIONS OF SOME VERTEBRATES OF THE CARBONIFEROUS AGE.

(Plate VII.)

BY O. P. HAY,
OF THE AMERICAN MUSEUM OF NATURAL HISTORY, NEW YORK.

(Read March 16, 1900.)

The following descriptions are based partly on materials which belong to the United States National Museum, partly on materials collected by members of the United States Geological Survey, and partly on a small but very interesting collection which belongs to Mr. L. E. Daniels, of La Porte, Indiana. In the last-named collection are included several specimens of a fossil fish which probably belongs to Dr. Newberry's *Elonichthys peltigerus* and one specimen of Prof. Cope's *Amphibamus grandiceps*.

A few scales of fishes have also been received for examination from the Peter Redpath Museum, Montreal.

DITTODUS LATUS (Newb.).

Diplodus latus, Newberry, J. S., *Proc. Acad. Nat. Sci. Phila.*, viii, 1856, p. 99; Newberry and Worthen, *Geol. Surv. Illinois*, ii, 1866, p. 59, Pl. iv, Figs. 1-1^a; Newberry, J. S., *Geol. Surv. Ohio*, i, 1873, Pt. 2, p. 336; *Geol. Surv. Ohio*, ii, 1875, Pt. 2, p. 44, Pl. lviii, Figs. 1-1^b; Woodward, A. S., *Cat. Foss. Fishes*, Pt. i, 1889, p. 12; Destinez, P., *Ann. Soc. Geol. Belg.*, xxiv, 1898, p. 220.

Dissodus latus, Miller, S. A., *N. Amer. Geol. and Pal.*, 1889, p. 714.

A nodule bearing Mr. Daniels' No. 17, from Mazon Creek, Illinois, had originally enclosed a tooth of this species of *Elasmo-*branch. The tooth itself had been almost wholly dissolved out of

the matrix, so that with a little careful cleaning a mold was obtained, into which wax was pressed and thereby a satisfactory restoration of the tooth obtained. The tooth resembles most closely the figures of the species published in the second volume of the *Geological Survey of Illinois*, Plate iv, Figs. 1-1°. The height of the longest cusp from the lower surface of the base of the tooth is 20 mm. The edges of the compressed cusps had evidently been serrated. The base is prolonged backward, furnished with a button posteriorly and above, flat on the lower or attached side, and with a downwardly projecting tubercle near its front border.

This species was originally reported by Dr. Newberry from the coal-measures of Linton, Ohio. In 1866 it was announced from the coal-measures of Posey county, Indiana. Mr. A. S. Woodward states that it has been found in Illinois, but he probably so inferred from its being described in the Illinois Geological Survey reports. So far as I am aware, it has not hitherto been known from that State. It furnishes another proof of the close relationships of the faunæ of the Linton and the Mazon creek beds. Destinez, as above cited, has reported the species from Belgium.

DITTODUS LUCASI, sp. nov.

This species appears to be quite distinct from any described up to this time. The possessor of this tooth has been a fish of considerable size. The height of the longer of the two principal cusps is 18 mm., that of the shorter 15 mm., the measurements being made from the lower surface of the base. The tips are separated by a space of 16 mm. The cusps are compressed and furnished with carinæ on the edges. The latter have not, so far as I can determine, been serrated. The form of the cusps does not differ essentially from those of *D. compressus* (Newb.). Between the main cusps, standing at the very front border of the tooth and projecting farther forward than the main cusp, is a very distinct median cusp. Its height, measured from the lower surface, has been about 7 mm., possibly more. The characteristic feature of the tooth is found in its small base. This, when compared with such a species as *D. latus*, is weak. The width of the base (parallel with the jaw) is 10 mm.; the length (transverse to the jaw) is only 7 mm. On each side of



FIG. 1. *Dittodus lucasi*.

the midline of the base, on its posterior edge and directed backward, is a tubercle about 2 mm. long. There is no indication of any button. The plane of the main cusps makes an obtuse angle posteriorly with the plane of the lower surface of the base—that is, the main cusps project forward very distinctly. This species bears some resemblance to *D. compressus* (Newb.), but a close comparison with the descriptions and figures of that species makes it evident that it is not the same. Newberry's species had all the denticles, even the median one, distinctly crenulated. The base of *D. lucasi* is evidently of a different pattern. Newberry regarded *D. compressus* as being closely related to *D. latus*, but concluded that it possessed a smaller base, the dimensions being three lines long by two and one-half wide. O. St. John describes and figures the species (*Final Report U. S. Geol. Survey Nebraska*, 1872, p. 240, Pl. iv, Figs. 19^a, 19^b). The base is shown to be narrower than long and to have an obtuse tubercle projecting downward anteriorly. The base of *D. lucasi* is broader than long and possesses no such tubercle.

The iron-stone nodule which furnishes the mold of this tooth bears the United States National Museum's catalogue No. 4338 and also Prof. Cope's symbol, F, 3, it having evidently been in his hands as a part of the Lacoe collection which he described. However, it was not named by Prof. Cope. It is from the coal-measures of Mazon creek, Illinois.

This species is named in honor of Mr. Frederick A. Lucas, Curator of the Department of Comparative Anatomy, United States National Museum.

CLADODUS GIRTYI, sp. nov.

This species, which appears to be distinct from any hitherto described, was collected in the coal-measure deposits of Colorado by Dr. George H. Girty, of the United States Geological Survey, and it is named in his honor. It is represented by a single tooth.

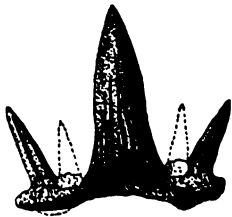


FIG. 2. *Cladodus girtyi*.

This consists of the base, a large median cusp and two smaller cusps on each side of the median one. Of the lateral cusps, the one on each side next to the main cusp is missing, but the size of these may be inferred from the size of the stumps remaining. They could hardly have been much smaller than the outside cusps. The base has a

width (measured parallel with the jaw) of 15 mm., and a length (measured across the jaw) of 5 mm. The outline of this base is somewhat excavated in front beneath the central cusp, forming a sinus, and projects somewhat both forward and downward just below each first lateral cusp. The central cusp has a height of 12.5 mm., measured from the under side of the base; while the outer cusps, measured in the same way, have a height of 7 mm. The main cusp has, at the base, a width of 4.5 mm. and is of a lanceolate form. It has a sigmoid flexure, the profile being, just above the base, convex in front; just below the tip, concave in front. The outer lateral cusps are straight and rather stout in form. The section of the main cusp is lenticular, or nearly semi-circular, the anterior outline being much less convex than the posterior. The edges are trenchant. The anterior face of the main cusp is ornamented by about a dozen sharp costæ, separated by rounded grooves. Of these costæ, the median ones run up three-fourths the way to the tip of the tooth. Those nearer the edges are successively shorter. The posterior face of this cusp is similarly ornamented.

The lateral cusps have a hexagonal section, the sides of the hexagon being concave outwardly. Seen from the front, these cusps each present three sharp costæ separated by broad rounded furrows.

This species resembles in various respects certain other species. *Cladodus gracilis* N. and W., of the coal-measures of Indiana, has the median cusp marked by a few coarse, sharply-prominent striæ, but these are said to be somewhat irregular. The lateral denticles are very long, slender, nearly cylindrical and coarsely striated. *Cladodus intercostatus* St. J. and W., of the upper Burlington deposits of Iowa and Illinois, also possesses certain resemblances. However, the postero-superior surface of the base of that species is said to be "surmounted near the posterior margin by a laterally elongated, narrow, roughened prominence, equal to about half the lateral diameter of the base"; of this I find no indications in *C. girtyi*. The ornamentation of the cusps of the two species is also evidently much different.

It might be supposed that the species here described is more likely to be identical with *C. mortifer* N. and W., a species of the coal-measures of Illinois, Indiana, Iowa, Nebraska and Kansas. But aside from other differences, *C. mortifer* is described and fig-

ured as having a pair of conspicuous pads or bosses on the posterior part of the upper surface of the base. *C. girtyi* shows nothing whatever of this character. The only structure of this kind is the pair of protuberances found on the front of the lower surface of the base. The lateral cusps of *C. mortifer* are also said to possess sharp cutting edges and strong, sharp striæ. Good figures of *C. mortifer* may be found in St. John's paper in Hayden's *Final Report of the Geology of Nebraska*, Pl. iii, Fig. 6, and Pl. vi, Fig. 13; and in the posthumous paper by Dr. Newberry, *Trans. N. Y. Academy of Sciences*, vol. xvi, Pl. xxii, Figs. 2-3^d.

Cladodus occidentalis Leidy also is marked by a pair of bosses on the hinder part of the upper surface of the base. The distinctness of *C. mortifer* from *C. occidentalis* is questionable.

SAGENODUS.

In making a study of the scales of this genus I have had, thanks to the generosity of the authorities in charge of the vertebrate collections of the United States National Museum, access to the type specimens of the species described by Prof. E. D. Cope in a posthumous paper published in volume xxxvi of the PROCEEDINGS OF THE AMERICAN PHILOSOPHICAL SOCIETY, in the year 1897. Besides these scales, there are a few others belonging to the National Museum, which were presented, as were Prof. Cope's types, by Mr. Lacoe; but which Prof. Cope seems not to have examined. I have also had the privilege of examining still other specimens of the genus, which had been obtained from Mazon creek, Illinois, by Mr. L. E. Daniels, and which yet belong to his private collection. All these have been carefully studied and compared. The result is that I recognize as valid seven out of the ten species described by Prof. Cope. This writer relied much on the forms of the scales in his identifications of the species; but a close examination of a series of scales will quickly shake one's confidence in the validity of this character. I have examined also the scales on a specimen of the existing *Ceratodus*, with which *Sagenodus* was certainly closely allied, and I find that there is a considerable variation in the forms of the scales on different parts of the body. In the region near the shoulder-girdle they are usually broad and with truncated posterior border; toward the tail the scales are more elongated and pointed. Besides these, the head is covered with a few very large scales which differ in form

from those on the body. I am convinced that we must rely more on the arrangement of the system of nutrient canals found in these scales, and on the sculpture of the surface. The availability of both these characters depends somewhat on the perfection of preservation of the scale, but usually they can be satisfactorily determined.

To the writer it seems highly probable that the fishes of this genus, like their existing relatives, lived in fresh waters, probably in rivers which emptied into the sea in which the Mazon creek deposits were formed.

In such cases, when the fishes died, their bones would be left in the bottom of the rivers where they had lived, while numbers of their scales would be likely to be carried to the sea. This may account for the fact that no portions of the bony skeletons of any of the species has yet been found in the regions of Mazon creek.

If it appears remarkable that even seven species of the genus should be found entombed in one locality, we may suppose that possibly these inhabited as many branches of some great river and therefore were, when living, denizens of widely separated regions.

It may further be said that it is not wholly certain that the species described here as members of *Sagenodus* really belong to that genus. So far as regards ornamentation, none of the scales here called *Sagenodus* much resemble the figure of the scale of the type of the genus (*S. elegans*) given by Hancock and Atthey.¹ However, Fritsch² has presented much better figures of the same species, and these appear to possess the generic characters of our specimens.

SAGENODUS OCCIDENTALIS (Newb. & Worth.).

Rhisodus occidentalis, Newberry and Worthen, *Geol. Surv. Illinois*, ii, 1866, p. 19, Fig. 2; *Geol. Surv. Illinois*, iv, 1870, Pl. iv, Fig. 1; Newberry, J. S., *Pal. Fishes N. Amer.*, 1890, p. 192; Miller, S. A., *N. Amer. Geol. and Pal.*, 1889, p. 611, Fig. 1173; Woodward, A. S., *Cat. Foss. Fishes*, Pt. ii, 1891, p. 348 (referred with doubt to *Strepsodus*).

Sagenodus occidentalis, Cope, E. D., *Proc. Amer. Philos. Soc.*, xxxvi, 1897, p. 75, in part; Williston, S. W., *Kansas Univ. Quart.*, viii., 1899, p. 177.

¹ *Ann. Mag. Nat. Hist.* (4) vii, 1871, Pl. xiii, Fig. 3.

² *Fauna der Gaskohle*, ii, 1888, Pl. lxxx.

Megalichthys occidentalis, Hay, O. P., *Amer. Naturalist*, xxxiii, 1899, p. 787.

Sagenodus browniæ, Cope, E. D., *PROC. AMER. PHILOS. SOC.*, xxxvi, 1897, p. 81, Pl. i, Fig. 7; Williston, S. W., *Kansas Univ. Quart.*, viii, 1899, p. 177.

This species was briefly described by Newberry and Worthen in 1866, as above cited, and was illustrated by a wood-cut. This presented the general characteristics of the scale, but did not show well the system of nutrient canals. The same author's figure of the species published in 1870 also failed to show adequately the canals. In Prof. Cope's posthumous paper of 1897 the species was first referred to *Sagenodus*.

In his synopsis of the species of the genus, on page 76, he says of *S. occidentalis*, "Concentric lines conspicuous; tessellations and radii not conspicuous." By "tessellations" was meant the areas formed by the network of canals, and by "radii" the excessively fine lines which radiate from the central part of the scale toward the free border. However, the conspicuousness both of the canals and of the radiating lines depends much on the character of the fossilization, one or the other being often effaced. This must be taken into account in considering the species. I have before me a specimen (Daniels' No. 13) which has a great resemblance to Newberry and Worthen's original figure. It is, however, proportionately longer, its width being nearly equal to its length, while the figure referred to is somewhat wider than long. The scale is also smaller than that figured by Newberry and Worthen, the length being 33 mm. There is a border of conspicuous concentric lines, and the free border is minutely striated. But there is also a very conspicuous system of nutrient canals. This system consists of one set which start from the centre of growth of the scale and radiate, some toward the attached border of the scale, others toward the free border. An upper area of the scale is occupied by similar canals, which, starting at the upper extremity of the attached border, pass somewhat toward the centre; then, turning again backward and upward, come out on the upper side of the free border. A lower area of the scale is similarly marked. A second set of canals runs approximately at right angles to the set just described and unites them, thus dividing the scale into little areas which are more or less regular parallelograms. In another specimen (Daniels' No. 12) the centre of growth of the scale is

occupied by patch of some size in which the meshwork of the canals is very irregular. In Newberry and Worthen's figure a large portion of the scale is occupied by such an irregular meshwork. This may have been due to imperfections of the scale or to errors of observation. At least, I cannot doubt that the scale before me belongs to the same species as that described by the authors named. The figures presented by the same authors in volume iv of the *Geological Survey of Illinois*, Pl. iv, Fig. 1, show a scale differing from the other considerably in form and ornamentation, yet doubtless belonging to the same species. Here the centrally placed irregular meshwork occupies much less space. The radiating canals are shown, but are not conspicuous; and the fine striæ are not shown at all. In fact, the latter are so fine that they could be truly represented only in an enlarged view of the surface. A very similar scale (Cope's F, 99) has been identified by Prof. Cope (*op. cit.*, p. 77) as *S. occidentalis*, as well as others less perfectly preserved (Cope's F, 19, 20; not F, 1, 2). In these the nutrient canals are present, but represented by very fine lines and thus not conspicuous. The fine striæ, when looked for under a lens, occupy a large portion of the surface of the scale.

If I am correct in my identification of the scale spoken of above as bearing Daniels' No. 13, then I must regard as a synonym of *Sagenodus occidentalis* the scale described and figured by Prof. Cope under the name *Sagenodus brownia*, as cited above in the synonymy. I find nothing to distinguish it from Daniels' No. 13, except size, and this cannot be considered. The form of the scale is very much like the original figure published by Newberry and Worthen. Prof. Cope mentions *S. occidentalis* in connection with his *S. brownia*, but states that the areolation of the latter is coarser than in any other species. Prof. Cope's figure of *S. brownia* is faulty in that it represents the scale too broad.

SAGENODUS QUADRATUS (Newb.).

Rhizodus quadratus, Newberry, J. S., *Geolog. Surv. Ohio*, i, Pt. 2, 1873, p. 343, Pl. xxxix, Fig. 8; *Pal. Fishes N. Amer.*, 1890, p. 192; Lesley, J. P., *Dict. Foss. Penn.*, i, 1899, p. 877; Woodward, A. S., *Cat. Foss. Fishes*, Pt. ii, 1891, p. 262 (*Sagenodus* suggested).

Sagenodus quadratus, Cope, E. D., *PROC. AMER. PHILOS. SOC.*, xxxvi, 1897, pp. 76, 77.

Dr. Newberry, as above cited, described very briefly and figured

somewhat imperfectly this species under the name *Rhisodus quadratus*. Excepting that Mr. Woodward has suggested that the species belongs to *Sagenodus*, no additional information of importance has been published since 1873. Prof. Cope, indeed, mentions the fact that he had in his hands a single scale belonging to the portion of the Lacoe collection described by him and collected at Mazon creek, Illinois, and which he thought might belong to *S. quadratus*.

Dr. Newberry's figure represents well the form of the scale and the system of concentric lines. The system of nutrient canals is, however, very inadequately shown; perhaps they were not well displayed in the specimen figured. In my hands are two scales from Mazon creek (U. S. Nat. Mus. Cat., No. 5429 from Lacoe collection, and Daniels' No. 9) which I have no hesitation in referring to Newberry's *S. quadratus*. These scales have the size and the subquadrate form which characterized the original and also the conspicuous concentric lines of growth. One of these (U. S. Nat. Mus. Cat., No. 4429), looked at casually, shows little more of the system of canals than appear in Newberry's figure. The other specimen displays them with great conspicuousness. This scale differs in size from that of Newberry's figure by only a trifling amount; one of its posterior angles is more rounded off; the attached border is also much rounded; while the free border is slightly concave.

The surface of the scale, for purposes of describing it, may be divided into four fields, viz.: (a) an anterior, which includes all anterior to a line drawn across the scale somewhat in front of the centre of growth and therefore occupying the anterior third of the scale; (b) a posterior, which is included between lines drawn from the centre of growth to each of the two posterior angles of the scale; (c) and (d), upper and lower fields which occupy the remainder of the surface. The field (a) is occupied by a meshwork of nutrient canals, the cells of which are more or less square, very small near the anterior border, but growing coarser and more irregular near its posterior limit. The triangular field (b) is occupied by canals which radiate from the centre of growth to the free border of the scale. These lie close together and are connected at intervals by cross canals. The resulting cells are usually narrow and two to four times as long as wide. The intervals between the radiating canals are filled with very fine striæ which

radiate from the centre of growth, and the observance of which require the use of a lens. The fields (*c*) and (*d*) are occupied by a very few nutrient canals which form a few large cells. The most conspicuous of these canals run from the centre of growth to the upper and lower borders. It is in these two fields that the system of concentric lines is most strongly developed. Another scale (U. S. Nat. Mus., No. 4429) does not display nearly so well the system of nutrient canals, but the remainder of the ornamentation is well shown. A third quadrate scale from the Lacoe collection (U. S. Nat. Mus. Cat., No. 4426) is the largest I have seen, having a length of 94 mm. and a breadth of 62 mm. It has the characters of the species well displayed.

In the portion of the Daniels' collection in my hands for description is another scale (Daniels' No. 8) which is of oval form, 45 mm. long by about 29 mm. wide. The ornamentation, including the network of canals of this scale, is identical with that of the scale I have above described as *S. quadratus*. No character except form will separate the two. Another scale (Daniels' No. 19) has a length of 68 mm., a width of 48 mm., and an oval form. I cannot hesitate to place both of these in *S. quadratus*.

In Prof. Cope's paper already cited, on p. 77, he refers certain scales belonging to the Lacoe collection to *S. occidentalis*, and among them one whose two impressions are labeled F. 1, F. 2.¹ This scale is 40 mm. wide and 50 mm. long. I find few characters which would permit it to be referred to *S. occidentalis*, while most of the characters of *S. quadratus* are present. I have hesitated to place it here because the area, including the centre of growth, which in most specimens is occupied by a rather coarse areolation, is in this scale broken up into an extremely fine mesh-work; but the other scales differ among themselves in this respect. In form, the scale is closer to the typical *S. quadratus* than are the other oval forms that I have referred to this species, being proportionally broader and having the anterior and posterior borders more broadly rounded. It is also, as regards form, as far removed from the original specimens of *S. occidentalis* as it is from those of *S. quadratus*.

The scale mentioned by Prof. Cope as probably belonging to *S.*

¹ In the paper referred to, these scales are designated by the symbols "Figs. 1-2, 19-20, 99." This is probably an editorial error for F, 1, 2; 19, 20; 99, which symbols we find on the specimens.

quadratus, but as having an entirely exceptional form, is undoubtedly rightly identified. Its sculpture is in all respects like that of the specimen that I have above somewhat minutely described, except that the centre of growth is filled up with a very fine mesh-work of canals. In this respect it resembles the broadly oval scale above mentioned. The scale now being considered has a depth of 38 mm. and a length of only 24 mm. It bears the U. S. National Museum's Cat. No. 4388.

SAGENODUS RETICULATUS (Newb. and Worth.).

Rhizodus reticulatus Newberry and Worthen, *Geol. Sur. Ill.*, 1870, iv, p. 349, Pl. iii, Fig. 9 (not Figs. 13, 14); Woodward, A. S., *Cat. Foss. Fishes*, Pt. ii, 1891, p. 262 (referred with doubt to *Sagenodus*).

Sagenodus reticulatus Cope, PROC. AMER. PHILOS. SOC., xxxvi, 1897, p. 78, Pl. i, Figs. 2, 3; Williston, S. W., *Kansas Univ. Quart.*, viii, 1899, p. 177.

Sagenodus magister Cope, PROC. AMER. PHILOS. SOC., xxxvi, 1897, p. 81, Pl. i, Fig. 8; Williston, S. W., *Kansas Univ. Quart.*, viii, 1899, p. 177.

In the report of the Geological Survey of Illinois, vol. iv, as above cited, Newberry and Worthen described the species *Rhizodus reticulatus* and illustrated it by three figures (Pl. iii, Figs. 9, 13, 14). Prof. Cope, writing in 1897, as cited, concludes that two distinct species were involved in the original description and figures and, judging from the materials before me, I believe that he was correct. Prof. Cope then, as he had an undoubted right to do, restricted Newberry and Worthen's specific name to their Figure 9 and referred the other Figures 13, 14 to his own new species *S. quincunciatus*. It is unfortunate that the figure of the type is such an unsatisfactory one. Prof. Cope's figure of *S. reticulatus* shows quite well its characters. He states that the longitudinal striæ of the distal border are not interrupted by any concentric lines, but the latter are nevertheless present in the specimen that he has figured. The agreement of these scales in form with that figured by Newberry and Worthen (Fig. 9) makes it reasonably certain that they all belong to the same species.

A careful study of Prof. Cope's types of his *S. magister* and comparison of them with the scales which he has identified with *S.*

reticulatus has convinced me that they belong to the same species of fish. A comparison of Prof. Cope's figures of the two alleged species will show that they do not differ greatly in form or in sculpture. *S. reticulatus* as figured has its free extremity considerably narrowed, but another scale identified by Prof. Cope as *S. recticulatus* (U. S. Nat. Mus. No. 4389 = Cope's F, 58) has this extremity narrowed as little as it is in *S. magister*. The scales assigned to the latter name are indeed much larger, but the scales of a young fish are naturally smaller than those of an old and larger one. The system of canals in both lots of scales covers the greater part of the surface with a fine meshwork. Only a patch near the upper border and another near the lower border have the areolation coarser. The coarseness of the areolation on the upper border of Prof. Cope's Figure 2 is exaggerated, those large cells being subdivided by finer canals which are not figured.

This species must not be confounded with that recorded as *Sagenodus reticulatus* Newberry by Mr. A. S. Woodward in his *Catalogue of Fossil Fishes*, Part ii, p. 26, and which was originally described as *Ctenodus reticulatus*.¹ The reference of both *Ctenodus reticulatus* and *Rhizodus reticulatus* to *Sagenodus* makes it necessary that the later described species, *C. reticulatus*, shall receive a new name. It may be called *Sagenodus jugosus*, in allusion to the seven radiating ridges on the crown of the tooth on which the species was based.

SAGENODUS FOLIATUS Cope.

Sagenodus foliatus Cope, E. D., PROC. AMER. PHILOS. SOC., xxvi, 1897, p. 77, Pl. i, Fig. 1; Williston, S. W., *Kansas Univ. Quart.*, viii, 1899, p. 177.

The form and the character of the meshwork of nutrient canals are shown in Prof. Cope's figure cited above. That figure, however, presents too conspicuously the system of concentric lines. The striæ which Prof. Cope describes are not indicated in the figure, and indeed could hardly be represented on account of their fineness. These striæ may, with a good lens, be seen to occupy a considerable portion of the surface of the scale. A feature of the network of nutrient canals is that one set of these radiate from the centre to all parts of the border of the scale. They lie close together and are frequently connected by cross canals, so that rows

¹ *Geological Survey of Ohio*, ii, 1875, p. 60.

of nearly square cells run out in all directions from the centre. I have seen no specimens except those described by Prof. Cope (U. S. Nat. Mus. Cat. Nos. 4372, 4394).

SAGENODUS LACOVIANUS Cope.

Sagenodus lacovianus Cope, E. D., PROC. AMER. PHILOS. SOC., xxxvi, 1897, p. 79, Pl. i, Fig. 5; Williston, S. W., *Kansas Univ. Quart.*, viii, 1899, p. 177.

Sagenodus conchirolepis Cope, E. D., PROC. AMER. PHILOS. SOC., xxxvi, 1897, p. 79, Pl. i, Fig. 4.

Sagenodus conchiopsis (*conchirolepis*), Williston, S. W., *Kansas Univ. Quart.*, 1899, viii, p. 177.

I regard as identical the two species which Prof. Cope has described and figured as above cited. In form the types differ in that *S. lacovianus* narrows somewhat toward the free margin and is more pointed, while *S. conchirolepis* is slightly wider posteriorly and is more truncated; but nothing can be based on such differences. As regards the ornamentation, I find no differences. The type of *S. conchirolepis* is said to have the tessellated area continued to the edge of the scale, but this depends to a great extent on perfection of preservation, and with a good lens may be observed in places even in the type of *S. lacovianus*. Prof. Cope was mistaken, too, I think, when he said that in the type of *S. lacovianus* there are no concentric lines except one coarse one. A number of others are present, but they require mostly the use of a lens. Prof. Cope stated that the sculpture of *S. conchirolepis*, as in *S. reticulatus*, radiates from near the proximal end. This I regard as an important character. An examination shows that in the types of both *S. lacovianus* and *S. conchirolepis* the centre of growth is at the extreme anterior end of the scale. In one of the specimens (U. S. Nat. Mus. Cat. No. 4391 = Cope's F, 59, 60) which Prof. Cope has identified as *S. reticulatus* a considerable number of growth-lines may be seen sweeping around in front of the centre of growth; so that, where the sculpture is well shown, this character may be employed to distinguish the scales. In the specimen of *S. reticulatus* referred to, the centre of growth is removed from the anterior border of the scale one-fifth the whole length of the scale. In the U. S. Nat. Museum there is another scale (U. S. Nat. Mus. Cat. No. 4384), from the Lacoe collection made at Mazon creek, which is intermediate between the type of *S. conchirolepis* and that of *S.*

lacovianus, so far as sculpture and form are concerned; but the size is but little less than that of the type of *S. lacovianus*.

SAGENODUS QUINCUNCIATUS Cope.

Rhizodus reticulatus, part, Newberry and Worthen, *Geolog. Surv. Illinois*, iv, 1870, p. 349, Pl. iii, Figs. 13, 14; Woodward, A. S., *Cat. Foss. Fishes*, Pt. ii, 1891, p. 262 (referred with doubt to *Sagenodus*).

Sagenodus quincunciatus Cope, E. D., *PROC. AMER. PHILOS. SOC.* xxxvi, 1897, p. 80, Pl. i, Fig. 6; Williston, S. W., *Kansas Univ. Quart.*, viii, 1899, p. 177.

This species has for its type the scale bearing U. S. Nat. Mus. Cat. No. 4364 = (Cope's F, 39, 40). It must have been a very abundant species in the region of Mazon creek, since besides the five specimens recorded in Prof. Cope's paper, there are in the portion of the Daniels' collection in my hands five additional scales. Four of these resemble so closely those described by Prof. Cope that no mistake can be made in their identification. One of these (Daniels' No. 10) is considerably larger than any of those seen by Prof. Cope, having a length of 31 mm. The other specimens in my hands are Daniels' Nos. 11, 20, 21, and U. S. Nat. Mus. Cat. No. 4366, the latter being a part of the Lacoe collection.

As before stated, Prof. Cope referred to this species the specimens described and figured by Newberry and Worthen in vol. iv of the *Geological Survey of Illinois*, p. 349, Figs. 13, 14. Of the correctness of the identification of Figure 14 there can be no doubt. As to Figure 13, Prof. Cope himself was in doubt, mainly because it represented a scale much larger than any other of the species in his hands. The scale before me which bears U. S. Nat. Mus. Cat. No. 4366, broken away slightly at the proximal end, has been nearly as long as the one represented by Newberry and Worthen's Figure 13, but is narrower, the length being 63 mm., the width 38 mm. The distal border is more convex than that of the figure. It has all the characteristics of the smaller specimens of *S. quincunciatus*, and it becomes more certain that the one figured by Newberry and Worthen belongs here. In this species the nutrient canals stream backward toward the posterior border, constantly anastomosing with one another, and in the middle region of the scale forming an irregular and fine areolation. Above and below the growth-centre there are a few very large cells, and similar cells

are continued backward, growing smaller to near the posterior border. It seems to me that Newberry and Worthen's Figures 13 and 14 present the characteristics of the scales of this species in a pretty satisfactory manner; although in Figure 13 the areolation is not small enough. Prof. Cope's figure of the species represents the concentric lines of growth near the posterior border entirely too conspicuous; although in his description he says that they are rarely present.

Prof. Cope has stated that one of the nodules in his hands contained two scales in mutual relation. A careful examination shows that there are three such scales present. I have before me a scale 50 mm. long taken from a modern *Ceratodus*, which in form and the general arrangement of the nutrient canals is strikingly like the large scale of *S. quincunciatus* above described. However, I find that in the living *Ceratodus* the canals do not give off so many branches, and that consequently the enclosed area or cells are much larger than in *Sagenodus*.

SAGENODUS TEXTILIS Hay.

Sagenodus gurteianus Cope, PROC. AMER. PHILOS. SOC., xxxvi, p. 82, Pl. i, Fig. 9 (preoccupied by Cope, 1877); Williston, S. W., *Kansas Univ. Quart.*, viii, 1899, p. 177.
Sagenodus textilis, Hay, O. P., *Amer. Naturalist*, xxxiii, 1899, p. 786.

This, on careful examination of the type specimen, I regard as a very distinct species, and it is well represented in Cope's figure cited above. Under a lens no radiating striæ are seen anywhere. A trace of lines of growth is present at one of the angles, and from these I infer that the proximal extremity of the scale is that narrowed border which in Prof. Cope's figure is directed upward and toward the left hand. No other specimens are known.

RHIZODOPSIS MAZONIUS sp. nov.

This species is based on a single scale which bears the U. S. National Museum Catalogue, No. 4337. It belongs to the Lacoe collection and was obtained at Mazon creek, Ills. It was in Prof. Cope's hands and bears his numbers F, 65, F, 66, the nodule being split as usual into two portions. Prof. Cope has labeled the specimen "*Cœlacanthus* sp. Cope," but it does not belong to this genus and probably not to the family of *Cœlacanthidæ*. The

sculpture of the scale resembles closely that of *Rhizodopsis robustus*, as shown by Figure 3 of Plate xvi of Mr. A. Smith Woodward's *Catalogue of Fossil Fishes*, Part ii; and I place the species in that genus provisionally. The only reason I have for doubting the correctness of this assignment is the existence of a network of anastomosing lines throughout the denser portion of the scale, or something more than the proximal one-half of the area of the scale. This network is exceedingly irregular, like the cracks in dried mud, but nevertheless reminds much of the network of nutrient canals found in the scales of *Sagenodus*. In the scale before me these apparent canals are occupied by the white mineral which is so often found in fossils from this locality. It is not improbable that the bony substance of the scale has shrunk and cracked and the cracks been filled up with a foreign substance. If it shall prove that these are really nutrient canals the scale will represent apparently an undescribed genus close to *Sagenodus*.

The scale here described is ovate in form, being somewhat pointed at the proximal end. Its length is 25 mm, its breadth 14.3 mm. The proximal half has been osseous and rather thick, its thickness now, after the compression to which it has been subjected, being about equal to that of ordinary book paper.

The centre of growth or nucleus is located very close to the central part of the scale and the sculpture is disposed with reference to this nucleus. Concentric lines of growth appear on the lower surface of the osseous substance and on the underlying matrix. From the nucleus thread-like lines radiate to the proximal border of the scale and cover a broadly wedge-shaped area. Of these lines there are about ten in a millimetre. Similar lines, starting from the free border of the scale, converge toward the nucleus, but the outer ones, upper and lower respectively, pass above and below the nucleus and assume the position of concentric lines.

STREPSODUS HARDINGI (Dawson).

Rhizodus hardingi, Dawson, J. W., *Acadian Geology*, 1868 and 1878, p. 255, Fig. 77, a-d.

Strepsodus hardingi, Woodward, A. S., *Cat. Fossil Fishes*, ii, 1891, p. 353.

This is the only North American species which has up to this time been assigned to this genus. It was named and figured by



Dr. Dawson, as cited above, but there was practically no description presented. The figures represent two scales, a small one and a portion of a large one. They show the size and form, the existence of radiating and concentric lines, and near the centre an elongated mark of some kind.

From the Peter Redpath Museum, in Montreal, through the kind offices of Prof. Frank D. Adams, I have received two specimens of the scales of this fish, both of which were presented to the Museum by Dr. Dawson. Although evidently not the subjects of his figures, they may be accepted as authentic representatives of his species. Both are large scales, but they differ much in form. One of these, having a part of one side missing, has been almost circular, with a diameter of 38 mm. ; the other is oval, with a long axis of 40 mm. and a short axis of 33 mm. The large scale figured by Dr. Dawson must also have been nearly circular, while the small one was ovate. We have here an illustration of the futility of relying much on the form and size of scales.

The scales before me appear to present their inner surfaces. The circular scale has an elongated depression, whose posterior end is placed very close to the centre of the scale. From this there diverge nearly straight rows of elevated points. What we have then seems to be merely a cast of the inner surface, the points being the fillings of the pits of that surface. Concentric lines occupy a large part of the surface, being most distinct anteriorly, very indistinct posteriorly. Some evidences of longitudinal striæ, or radii, are found along the anterior border, where the surface of the scale appears abraded. The substance of the oval scale is present. Its boss, not very distinctly shown, is in the centre of the scale. From it lines of small pits and low folds diverge in straight lines to the posterior border. At the border the folds are well shown. It seems probable that these folds and rows of pits represent the course taken by the furrows of the other side of the scale. In *S. arenosus*, next described, these furrows run forward and branch in a very irregular manner. The surface of the oval scale here described shows a fine fibrillation whose lines run in various directions, apparently without relation to the other markings. The circular scale is from the Horton beds of the Subcarboniferous at Horton, Nova Scotia; the oval scale is from Pictou, and probably from the same deposits.

STREPSODUS ARENOSUS sp. nov.

There has been placed in my hands by Dr. David White, of the United States Geological Survey, for identification, the imprint of the external surface of a scale of a species of the genus *Strepsodus*. This fossil was collected by Dr. White from a shale near the base of the Lower Carboniferous rocks, in the vicinity of Collier's Station, Blair county, Pa.

The scale is somewhat imperfect, through the loss of a small portion of the distal, or free border. Nevertheless, enough is present to give us all the essential characters. The scale has had a length of about 28 mm. and a breadth of 21 mm.

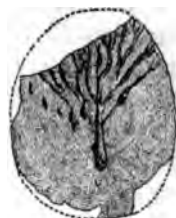


FIG. 3. *Strepsodus arenosus*.

The proximal, or attached, end has been broadly rounded; the free end was also rounded, but probably less broadly. The most conspicuous feature of the ornamentation of the fossil is found in the system of furrows, which resemble a tree with its trunk and branches. These furrows, according to Mr. A. S. Woodward, are on the external surface of the scale. The main trunk is a furrow which began a little proximad of the centre of growth and a little less than one-third the length of the scale from its attached end. This, or a portion of it, would be represented on the other side of the scale by an elevation, or boss. At about the centre of the scale the main furrow begins to give off lateral branches in such a way that, like a deliquescent tree, it is soon lost. The smaller divisions of the branches were carried out to the free border of the scale.

The surface of the scale is everywhere covered by a fine, almost microscopic sculpture, which is produced by numerous elevated points. These are arranged in either concentric or radiating lines and often in both. There are about ten of these lines in a millimetre. On the upper and lower sides of the scale the concentric lines predominate; on the posterior portion of the scale the radiating lines are more conspicuous. These lines of minute elevations are also found in the furrows. Near the free border of the scale the elevations appear to have coalesced in rows, so as to make continuous longitudinal ridges.

The specific name has been suggested by the sculpture of the surface, which resembles grains of fine sand arranged closely together in rows.

STREPSODUS DAWSONI sp. nov.

Rhizodus lancifer, in part, Dawson, J. W., *Acadian Geology*, 1868 and 1878, p. 210, Fig. 56^b (not *a*).

In his *Acadian Geology*, as cited above, first in 1868, Principal, afterwards Sir William, Dawson identified, with doubt, some teeth which had been found in the deposits of the coal-measures at Pictou, Nova Scotia, with similar teeth which had been described by Dr. J. S. Newberry from the coal-measures of Ohio. Found in the same deposits at Pictou were many scales, and these too were regarded as belonging to the same species. Dr. Newberry also had found some large scales in the deposits at Linton, Ohio, which furnished the teeth, and these scales, he thought, might have belonged to the animals which had borne the teeth. It is quite evident, however, that the scales found in the two localities were not the same; and it is far from certain that the teeth are not those of Batrachia. And even if the Acadian teeth are those of fishes, there is no proof that they and the scales belong to the same species or even genus. Hence, it appears to be better to allow the teeth to stand on their own merits and to give the scales a name of their own.

From the Peter Redpath Museum I have received also a scale, No. 3076, which has every appearance of being the one which furnished the figure published by Dr. Dawson. This scale belongs to the genus *Strepsodus*, as defined by Mr. A. Smith Woodward, and I give it the name of *Strepsodus dawsoni*.

This scale has almost the exact dimensions of Dr. Dawson's figure, although the upper, or rather the hinder, end is somewhat less rounded than indicated by the figure. The length is 19 mm., the extreme width 18 mm. As seems to be indicated by the ornamentation, the inner surface is exposed to view. Nearer the anterior than the posterior end is a small elongated boss, or protuberance, a characteristic of the genus. The surface of the scale behind this is marked by numerous little pits. Dr. Dawson's figure represents these pits as existing also in front of the boss, but I find none there. They appear to be arranged somewhat in rows, which radiate from the boss to the hinder edge of the scale. All around the scale, but less distinct on the anterior end, there is a rather wide border, which is occupied by undulating and concentric lines of growth. In this border there is, on one side, an interruption in the course of these lines, as though the scale had been crumpled. Dr. Dawson's

figure represents this. At the anterior end of this scale the border just referred to is crossed by numerous fine longitudinal striæ, or radii. At the posterior end of the scale are seen wider folds. These probably have something to do with the large radiating furrows which would be found on the other side.

With the few specimens on hand it is difficult to specify characters by means of which this species may be distinguished from *S. hardingi*. Were they both found in the same formation I would hesitate to separate them, but it is unlikely that the same species occurs in the Subcarboniferous and in the Coal-measures. Were the outer surfaces of the scales exposed we might possibly discover differential characters. So far as the specimens of the two species indicate, the boss of *S. hardingi* is placed nearer the centre of the scale than is that of *S. dawsoni*. I find on the surface of the latter species no such fibrillation as is seen on *S. hardingi*, but this may be due to the character of the preservation. *S. dawsoni* is a much smaller scale than any yet reported of *S. hardingi*, but we must not place too much reliance on this fact.

CÆLACANTHUS ROBUSTUS Newb.

- Cælacanthus robustus*, Newberry, J. S., *Proc. Acad. Nat. Sci. Phila.*, viii, 1856, p. 98; *Geol. Surv. Ohio*, Pal. i, Pt. 2, 1873, p. 341, Pl. xl, Figs. 2, 2a; *Pal. Fishes N. America*, 1890, p. 228; Huxley, T. H., *Mem. Geolog. Survey United Kingdom*, x, 1866, p. 14; Woodward, A. S., *Cat. Foss. Fishes*, Pt. ii, 1891, p. 406.
Rhabdoderma robustum, Reis, O. M., *Palæontographica*, xxxv, 1888, p. 71.

A single scale of this species has the U. S. Natural Museum's Catalogue No. 4336. It also bears Prof. Cope's number F, 37, and belongs to the Lacoe collection. Prof. Cope has labeled it "*Cælacanthus* sp. Cope, Mazon creek, Illinois." It seems to me that it certainly belongs to *C. robustus* Newb. The species was originally described from specimens found in the coal measures at Linton, O. So far as I can judge, from a comparison of the Mazon creek specimen with the description and figure presented by Newberry, there is no important difference, unless it is that of size and proportions. The Mazon creek scale has a length of 23 mm. and an extreme width of 14 mm. Dr. Newberry's specimen figured had a length of 20 mm. and a width of 14 mm., being therefore

relatively a broader scale. It is also, as represented, slightly less drawn out at the free tip than in the scale before me; but such discrepancies are scarcely to be considered. The exposed portion of the scale is embellished with fine, closely crowded, thread-like lines, which starting from the tip run forward, diverge, give off branches, and remain of the same size. A little distance in front of the tip of the scale the lateral lines cease to branch, but those along the median line of the scale continue to do so. New lines also continue to start from the border of the scale as far forward as the lines continue. This uncovered portion of the scale also possesses a very narrow border of short, very fine lines, which are directed inwards at right angles to the edge of the scale. The ornamentation of the portion of the scale overlapped by the adjacent scales is quite different from that described. The centre of growth of the scale is a very little in front of the centre of area of the scale, and the thread-like lines which have just been described come forward, in the midline of the scale, nearly to the growth-centre. On the covered part of the scale numerous delicate lines of growth are arranged concentrically around the centre of growth. Besides these, there is another system of extremely fine lines which start from the anterior border of the scale and from the lateral borders as far back as the scale is covered. They are directed backward and somewhat inward so as to cross the lines of growth at an angle, large in front of the growth-centre, small above and below it.

The ornamentation of this scale is decidedly different from that of *C. elegans* as represented by Mr. A. S. Woodward.¹ According to his figure there are only about forty-five thread-lines to be counted across the widest part of the area of the scale; while in that before me there are about eighty such lines. This difference harmonizes well with Newberry's figures of the scales of the two species and with his statement,² when speaking of *C. ornatus*, that the ornamentation of the latter is not only relatively, but absolutely coarser than that of *C. robustus*, in individuals ten times as large.

¹ *Cat. Fossil Fishes*, Pt. ii, Pl. xiv, Fig. 2a.

² *Geolog. Surv. Ohio*, Pal. i, p. 340.

ELONICHTHYS PELTIGERUS? Newberry. (Plate VII.)

Elonichthys peltigerus, Newberry, J. S., *Proc. Acad. Nat. Sci. Phila.*, 1856, p. 98; Woodward, A. S., *Cat. Foss. Fishes*, Pt. ii, 1891, p. 90.

Palæoniscus peltigerus, Newberry, J. S., *Geolog. Surv. Illinois*, ii, 1866, p. 17; *Geolog. Surv. Ohio*, ii, Pt. ii, 1873, p. 345, Pl. xxxviii, Figs. 1-1^b.

The illustrations of the above species of fossil fish presented by Dr. Newberry were all derived from the same specimen, one presumably, but not certainly, from the Carboniferous shales of Linton, Ohio. Mr. A. S. Woodward, as cited above, states that the type specimen is in the collection belonging to Columbia University, of New York; but a search for it, kindly permitted by Dr. Bashford Dean, has not rewarded me with a view of it. Dr. Newberry says that he has obtained specimens of the fish from various localities in Ohio, Indiana and Illinois, those from the last State being credited to Fulton county. With several specimens in his hands, he ought to have been able to avoid any serious errors in his statement of the specific characters. Nevertheless, it is unquestionable that some errors did creep into his description and figures; and if the fishes before me belong to his species there is involved a number of errors.

In my hands are specimens of a species of *Elonichthys* which were obtained at Mazon creek, Illinois, by Mr. Daniels. These are contained in iron-stone nodules and are nearly all somewhat imperfect. The best is one which has a length of 137 mm. In this specimen the head is badly crushed, the region in front of the dorsal fin is injured, the extreme tip of the tail is gone, and there is a piece broken from the body just below the front of the dorsal fin. All the fins are shown pretty satisfactorily. This has the collector's No. 1 on it. No. 2 shows a fish which has been badly macerated and crumpled, but the ornamentation of the scales is well displayed. No. 3 is a young fish 50 mm. long and well preserved. No. 4 is a much disturbed fish showing only some scales, the pectoral and caudal fins. No. 7 consists of only the upper lobe of the caudal fin, but it shows well the striated fulcra, the caudal scales and the caudal rays.

Besides this material, I have found in the collection of Columbia University another specimen evidently of the same species, from Mazon creek, Illinois, and this is labeled in Dr. Newberry's handwriting "*Palæoniscus peltigerus*."

I have been in much doubt what disposition to make of this material. All the specimens show some important differences from the descriptions and figures of Dr. Newberry, and they may represent a distinct and undescribed species, but of this I cannot be sure. On the other hand, if it is identical with Newberry's species, the latter requires redescription, and an attempt to furnish this may result in basing a description on a species distinct from that described by Dr. Newberry.

The striking peculiarity of the type of Dr. Newberry's *E. peltigerus* and the one which suggested the specific name was the possession of a series of enlarged scales along the midline of the back, both in front of the dorsal fin and behind it. Those in front of the fin are said to be four times as large as the ordinary scales, and are so figured. Those behind the fin are said to become modified posteriorly into the strong fulcra of the tail, but Dr. Newberry's figures do not represent any fulcra present. I find such enlarged scales in only one of the specimens in my hands, that of one of the halves of nodule No. 3, which bears the impression of a little fish 50 mm. long. In all the other specimens they are missing, even when the preservation is such that they might be expected. Evidently the opportunity of seeing them depends, to a great extent, on the way in which the nodule splits.

These scales, as shown in the specimen referred to, begin close behind the head and continue backward nearly to the fin, but there is a brief interruption, probably accidental, about three-fourths of the way back. Just in front of the fin they again appear and, as shown especially in the Columbia University specimen, they change gradually into fin fulcra. This row of scales extends further forward than that described by Dr. Newberry, are in greater number and of different form; but all these differences may not be important. Immediately behind the dorsal fin I find no enlarged scales in any of the specimens. The fulcra begin as small, pointed scales and gradually enlarge.

Excepting the enlarged scales mentioned above, Dr. Newberry neither described nor figured any others peculiar in any way. Those immediately behind the shoulder girdle and on the flanks are all represented as being about as high as long. But in all of the specimens in my hands which are well enough preserved I find that the scales in several perpendicular rows just behind the shoulder girdle are twice as high as long. In case Dr. Newberry's type specimen



had such scales in this region as he has represented, it seems probable that those in my hands belong to a distinct species. These high scales gradually become reduced in height, so that those below the dorsal fin are about as high as long. The specimen 50 mm. long does not show so well the height of the anterior scales, and it is quite probable that the height increases with the size of the fish. They are shown in the Columbia University specimen. The type of Dr. Newberry's species was five inches long and ought to have revealed these high scales.

The caudal fin of the present specimens is very different from that represented in Dr. Newberry's figures, but this is probably due to the imperfection of his materials. In his figures the tail is relatively short and single-lobed, while the scaly extension of the body beyond the beginning of the fin is less than one-fourth of the length of the fish. In my material the caudal fin is fully one-third the total length of the fish, is deeply forked and has the prolongation of the body covered with pointed scales carried out apparently to its very tip. I count in the longest specimen seventy-five rays, in the Columbia University specimen about sixty, but some are probably missing in the case of both fishes. Along the upper lobe of the tail are numerous striated fulcra. These diminish in height each way from the middle of the lobe.

The dorsal fin contains about twenty-five rays. I count a few more in the large specimen, a few less in that belonging to Columbia University. The fin base equals about one-seventh of the length of the fish, the height is somewhat greater. There were about twenty-five ventral rays, possibly a few more. Dr. Newberry states that in his specimen there were only ten pectoral rays, but undoubtedly it was defective. I count easily twenty rays in the large specimen, in which the fin is well displayed. The anal fin contains about forty rays, and its length was about equal to that of the dorsal.

I do not find that the ornamentation of the scales is different from that described by Newberry. Of the scales there seem to be eight rows above the lateral line and fourteen rows below it.

The body appears to have been somewhat elevated immediately under the dorsal fin, the latter being thus lifted somewhat. The sides of this elevation are covered with two rows, an upper and a lower, of narrow, rather long scales, which are directed parallel with the fin rays. The lower jaw, as shown by specimen No. 2

of Mr. Daniels' collection, is occupied by a row of closely set sharp teeth. The branchiostegals are short and broad, the number not determinable. The mouth was large, the eyes large and placed near the end of the head.

In case it shall be proved that the specimens described above belong to a species distinct from that of Dr. Newberry, I suggest that they be called *Elonichthys hypsilepis*, with the large specimen of the Daniels collection as type, that in Columbia University as co-type.

It seems highly probable that the fish mentioned by Newberry and Worthen in volume iv of the *Geological Survey of Illinois*, p. 348, 1870, under the name *Amblypterus macropterus*? Agassiz, may in reality have belonged to the same species as those herein described. It is regarded by Mr. A. S. Woodward as being an *Elonichthys*.

AMPHIBAMUS GRANDICEPS Cope.

Amphibamus grandiceps Cope, *Proc. Acad. Nat. Sci. Phila.*, 1865, p. 134; *Geol. Surv. Illinois*, ii, 1866, p. 135, Pl. xxxii, Fig. 8, and woodcut p. 136; *TRANS. AMER. PHILOS. SOC.*, (2) xiv, 1869, p. 8; Fritsch, A., *Fauna Gaskohle*, i, 1880, p. 93, Fig. 44; Miller, S. A., *N. Amer. Geol. and Pal.*, 1889, p. 618, Fig. 1178; Dana, J. D., *Man. Geol.*, 4th ed., 1896, p. 683, Fig. 1108.

In the collection belonging to Mr. Daniels there is a split nodule from Mazon creek, which contains the remains of a specimen of *Amphibamus grandiceps* Cope. The fossil has been somewhat damaged by fractures and a small portion is missing. Furthermore, as in the case of the original, the bones have been replaced by a soft white mineral, so that it has been found necessary in places to remove this and take wax impressions. Notwithstanding the lack of perfection in the fossil, it presents so many interesting features that it seems desirable that it shall be described; especially since it is, so far as I am aware, the only specimen of the species which has been found since the discovery of the original.

The entire length of this ancient salamander is 62 mm. The head is 15 mm. long and has a width almost exactly the same. The tail of the animal has been short, not exceeding probably 12 mm. Prof. Cope has represented the hinder limbs and portions of the anterior limbs. The whole hinder limb has had a length of 17 mm.; the fore limb, so far as I can determine, a length of 13 mm.

One important character exhibited in the specimen before me is the presence of ribs. The original specimen appears not to have exhibited these; and Prof. Cope concluded that they were really not present in the animal, and on this character more especially founded for it the order *Xenorhachia*, a group which he later abandoned. The ribs of *Amphibamus* are very slender, rather long and curved, expanded at the proximal end, and with the distinct appearance of having been double-headed. In this respect it differs markedly from *Branchiosaurus*, as described and figured by Fritsch, in which the ribs are short, stout, straight and single-headed. The number of pairs of ribs I am not able to determine with exactness. They are seen to approach to within 7 mm. of the head and to within less than this distance of what I regard as the sacral region. I make out the existence of at least twelve pairs, and there were evidently others near the head and probably still others closer to the sacrum. There are also traces of what appear to be one or two caudal ribs.

I find it impossible to determine exactly either the number or the form of the vertebræ, or the extent to which they are ossified. To *Branchiosaurus* Fritsch has attributed twenty presacral vertebræ, all of which possessed ribs except the most anterior. Prof. Cope thought that *Amphibamus* possessed probably thirteen. Basing my judgment on the apparent length of a few centra, I think that the number will fall a little short of twenty. The neural spines must have been very short. I cannot determine the presence of distinct processes for the attachment of the ribs. The vertebral column as a whole was slender, not broad as that of *Branchiosaurus*.

The head, though about as broad as long, has its greatest breadth far behind, while the outlines converge with a gentle curve to the snout, which is thus not so broadly rounded as in many of the related forms. The bones of the head were probably ornamented with a raised network of lines, enclosing pits. Prof. Cope regarded the head as beingsquamous. Many of the sutures between the bones are indistinct. The premaxillaries are undoubtedly separate. They appear to have each a short and broad ascending process. Exterior to this lies the exterior nares, bounded behind by the large and separate nasals, which meet along the midline. Prof. Cope indicated with doubt a suture crossing the interorbital space between its anterior and middle thirds, and another between the middle and

posterior thirds. While the specimen in my hands does not testify on these points as distinctly as one might wish, it seems probable that Prof. Cope was correct. Between these sutures would lie the frontals, probably, but not certainly, distinct from each other. In front of each eye is a curved prefrontal. Behind the frontals come the parietals, probably separated from each other by sutures. Near the coronal suture is seen the circular parietal foramen. Behind the eye lies a relatively large bone, which probably represents both the postfrontal and postorbital. Jugal, supratemporal, squamosal and epiotic appear to be clearly distinguishable, the latter extending prominently backward. The upper eyelid appears to have been strengthened by a pavement of bony plates over the eyeball, and near the free border this seems to have been produced into a kind of horn. The eyes must have been very large. Prof. Cope has represented a row of fourteen plates over the eyeball, which he regarded as bordering the lid. It is more probable that they are sclerotic plates. I do not find them. That author also describes and figures a whorl of scales on each side of the posterior region of the skull. I have seen no traces of these. The jaws were provided with numerous small conical teeth, but they are not in such a condition that I can say more about them.

The left forearm is apparently in its proper place. The humerus and one bone of the forearm are present. These are followed by numerous small bones, considerably disturbed, which I take to be those of the hand. What appears to be a distal phalangeal bone is relatively large and ends in a point. I cannot determine the number of digits. The head of the humerus lies against and laterad of the impression of a bone which I regard as the scapula. It is 4 mm. long and one-half as wide and with a border which is concave on the side next to the head of the humerus. This bone approaches closely the notch in the back of the skull.

Lying behind the angle of the jaw and running parallel with the body is a slender bone apparently consisting of two segments; this I take to be a part of the hyoidean apparatus.

The hinder limb is tolerably well preserved. The tibia and fibula are about two-thirds as long as the femur and they have a wide space between their shafts. Their distal ends are considerably expanded. There were five digits. No tarsal bones are seen; the first digit seems to have been very short, the next one very long. The terminal phalange of this ends in a sharp point. The terminal

segments of the other digits are not shown. The head of the femur comes up against a bone which undoubtedly belongs to the pelvis. Where the head of the femur touches it this bone is thick and solid; further behind it appears to have been a very slender, slightly curved rod. On the ventral surface of the animal, immediately in front of the sacral region, I find a quadrate patch of granulations, which seem to represent the impression of some bone pitted like those of the head. This may indicate a broad pubis or it may be produced by the bony armor of the skin in that region. Elsewhere I find numerous evidences of the existence of dermal defenses. None of these probably belonged to the upper region of the body. They apparently consisted of small bony plates which were arranged in rows. These began at or near the midline below and swept outward and backward to the sides. In one place I find ten of these rows in a width of two millimetres.

As to the relationship of this animal, it seems to me that while there are many structures yet unknown, such as the arrangement of the bones and teeth of the roof of the mouth, the sternal apparatus, and the condition of the vertebræ, it is closer to such forms as *Hylonomus* than to *Branchiosaurus*. The form of the head is different from *Branchiosaurus*; likewise the ribs and the limb bones.

NATIVE TRIBES OF WESTERN AUSTRALIA.

BY R. H. MATHEWS, L.S.

(Read March 16, 1900.)

Western Australia contains an estimated area of 978,299 square miles, or, inclusive of the contiguous islands, about 1,057,250 square miles, being about eight times the size of Great Britain. It is the largest of all the colonies of Australia, containing more than a third of the entire area of that continent. In the southwest coastal districts there is much land suitable for farming operations, and farther north there are extensive grassy downs, capable of depasturing immense numbers of sheep and cattle. Considerable areas are gold-producing, chief among which may be mentioned Coolgardie, Cue, Marble Bar and Kimberley—comparable in extent to some prominent European kingdoms. By far the greater portion of the colony, however, consists of vast arid tracts of sand and scrub, which is practically a desert.

In the present preliminary paper it is intended to give a brief outline of the social organization, rites and customs of the native tribes sparsely distributed over the whole of that portion of western Australia lying to the north of the twenty-eighth parallel of south latitude. Compared to the size of the territory occupied the number of the aboriginal inhabitants is insignificant.

On the Murchison, Greenough, Sanford, Roderick, Wooramel, Gascoyne and Lyons rivers the several native tribes are each divided into four sections, called Buljerry, Kiemarra, Boorong and Boogarloo. The intermarriage of these divisions, and the sections to which the resulting offspring belong, will be readily understood when arranged in tabular form, as under:

<i>Husband.</i>	<i>Wife.</i>	<i>Offspring.</i>
Buljerry	Boorong	Boogarloo
Kiemarra	Boogarloo	Boorong
Boorong	Buljerry	Kiemarra
Boogarloo	Kiemarra	Buljerry

These sectional names, with some modifications, are found among the natives at Weld Spring, Bonython Creek, Lake Throssell, Elder Creek, Glen Cumming, and extend eastward into South Australia, where a similar organization exists among the Andikarina and Arrinda tribes, particularized by me in previous publications.

If we travel northward from the Murchison, Gascoyne and other streams above mentioned, we discover that the tribes occupying the Ashburton, Fortescue, Yule, Shaw, De Grey and Oakover rivers are likewise divided into four sections, the names of which are Butcharrie, Kurrimurra, Burronga and Banaka, being simply variations of the nomenclature tabulated in this paper, Banaka taking the place of Boogarloo. These sections reach easterly into the northern territory of South Australia.

Proceeding still farther to the northward from the Oakover to the Fitzroy river, the four sections are known as Baljarra, Boorungo, Kimbera and Bannicka, the men of one section marrying the women of another in a certain fixed rotation. In all the tribes referred to in this paper there are aggregates of totems attached to each section or pair of sections, and descent of the children is counted through the mothers.

In the northeastern corner of western Australia, comprising the region watered by the Ord River and its tributaries, Sturt Creek, Margaret river and the Upper Fitzroy, are a number of native tribes, particulars of whose divisions and the limits of their territory are described in papers which I have communicated to different learned societies.

In all the country dealt with in the present article, with the exception of a strip along the western coast from about Geraldton to Onslow, all the youths are circumcised. Some time after their recovery they must submit to a further mutilation, consisting of splitting open the urethral canal from a point a little way from the scrotum almost to the glans, but leaving the latter intact, the incision being about two inches in length. In some tribes the glans is also split, the cut being carried right into the urinary orifice. After a man recovers from the effects of splitting the penis he is allotted a boy who has not yet been operated upon. This youth is a brother of the woman whom the man is entitled to claim as his wife. The boy is used for purposes of masturbation and sodomy, and constantly accompanies the man.

The natives who inhabit the barren desert country are much inferior to the coast tribes, both in personal appearance and in their weapons and utensils. Their mode of camping at night during the cold months of the winter is as follows: They scoop out a circular depression in the sand, about eighteen inches deep, the diameter varying with the number of individuals who are to use it. In this depression they light a fire, and gradually replace the sand they have scooped out until it is all sufficiently heated. At bedtime each person scrapes a trench in the warm sand and lies down without any clothing, letting the loose sand fall in around his body, except the face. A man, with his wives and children, would perhaps occupy one of these sleeping places, several young men another, some unmarried or old women another, and so on. It not unfrequently happens that pebbles are mixed with the sand, and these retain the heat for a longer time. Although not sufficiently hot to burn the skin of the sleepers, yet on lying against a person's body for a long time they raise blisters, which sometimes become sores, especially on the tender skin of children. No fire is kept alight during the night, but on emerging from their lairs in the morning fires are lit to cook any animal food they may have on hand.

ERRATA.

Papers on "The Specializations of the Lepidopterous Wing: The Parnassi-Papilionidæ," by A. Radcliffe Grote, Vol. xxxviii, No. 159:

Page 16, line 12, *for* IV, *read* IV₁.

Page 16, line 21, *for* IV, *read* IV₁.

Page 20, line 10, *for* IV *read* IV₂.

Page 37, line 13, *for* monophyllism *read* monophyletism.

PROCEEDINGS
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APRIL TO JUNE, 1900.

No. 162

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THE AMERICAN PHILOSOPHICAL SOCIETY,
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VOL. XXXIX.

APRIL, 1900.

No. 162.

Stated Meeting, April 6, 1900.

Vice-President SELLERS in the Chair.

Present, 26 members.

Mr. Frank Miles Day, a newly elected member, was presented to the Chair and took his seat in the Society.

The following correspondence was presented :

From Mr. J. H. Morgan, declining membership.

A communication from the Committee on the Modification of the Federal Legacy Tax, asking the coöperation of the Society. The President was requested to sign the memorial presented.

A notice relating to the "Concours d'objectifs à long foyer pour la Télé-photographie en Ballon."

The Librarian presented a list of the donations to the Library.

The death of the following members was announced :

Charles Bullock, of Philadelphia, on March 21, 1900, aged 74 years.

Franz Ritter von Hauer, at Leoben, Austria.

William M. Tilghman, of Philadelphia, on April 5, 1900.

The President was requested to appoint members to prepare obituary notices respectively of Mr. Charles Bullock and Mr. William M. Tilghman.

The following papers were read :

By Rudolph Buti, Ph.D., "About a Seal of the King Brunaburgas of Babilony."

PROC. AMER. PHILOS. SOC. XXXIX. 162. I. PRINTED APRIL 27, 1900.

By Mr. J. G. Rosengarten, on "American History from German Archives."

Dr. Hays, on behalf of the Committee on Historical Manuscripts, presented for publication in the *Proceedings* a calendar of the military correspondence of Major-General Nathaniel Greene, in the Library of the Society.

The Committee to which was referred the communication of the Philadelphia Section of the American Chemical Society, asking the coöperation of this Society in the effort to have a National Standards Bureau established in connection with the U. S. Office of Standard Weights, offered the following, which was adopted:

Whereas, In the conduct of accurate scientific investigations, the use of apparatus of guaranteed accuracy is a need recognized by all scientists; and

Whereas, In foreign countries, notably in Germany, in France, and in England, such guarantee is furnished by standardizing bureaux under the control of the respective Governments; and

Whereas, At present the United States Office of Standard Weights and Measures does not possess appliances necessary for this verification of as wide a range of apparatus as seems essential, nor the working force required to comply with legitimate demands for the verification and stamping of the various scientific apparatus designed for measurements of precision, thus compelling the importation of foreign-made articles when such official certification is desired; and

Whereas, This state of affairs is not only unsatisfactory to all investigators in both pure and applied science, but also works injustice to our manufacturers of nearly all physical and chemical apparatus designed for accurate measurement, who cannot supply the proper certification with such instruments: therefore be it

Resolved, That the Congress of the United States be urged to establish a National Standards Bureau, in connection with the U. S. Office of Standard Weights and Measures, which shall provide adequate facilities for making such verification of scientific measuring apparatus and stamping the same as are provided by foreign Governments for similar work.

Resolved, further, that a copy of the foregoing be forwarded to

the Secretary of the Treasury, under whose control the present office of Standard Weights and Measures comes; to the Superintendent of the U. S. Coast and Geodetic Survey; to the President of the U. S. Senate; to the Speaker of the United States House of Representatives; to the Chairman and members of the Committee on Coinage, Weights and Measures, and to any other officials or individuals likely to be interested or influential, with a request for their coöperation in our efforts to secure for the U. S. Office of Standard Weights and Measures ample facilities, in point of apparatus and working force, to enable that office to comply with the requests for the verification of measuring instruments that may be made by American scientific workers.

The Society was adjourned by the presiding officer.

AMERICAN HISTORY FROM GERMAN ARCHIVES.

BY J. G. ROSENGARTEN.

(Read April 6, 1900.)

While a body of able historians, McMaster, Rhoades, Fisk, Schouler and others, are enriching the world by an admirable series of works on American history, there still remains another field for historical research of interest and value. There are in Germany many papers dealing with the services of the Germans who were here as soldiers under the British flag and took an active and important part in the War of American Independence. Bancroft and Lowell, Kapp and Ratterman have collected and used such material as they could gather. General Stryker, in his *History of the Battle of Trenton*, has added largely to our stock of material for a better knowledge of the contents of the German Archives, still carefully preserved at Marburg and Berlin; and other collections of German records. It was through Kapp's labors that Bancroft added to his own collections, now belonging to the New York Public Library, and deposited in the Lenox Library of that city. These include Steuben's letters, Riedesel's papers, the Anspach papers, the Brunswick papers, Ewald's *Feldzug der Hessen nach Amerika*, *Geschichte der Hessischen Yäger in Amerikanischen Kriege*, fourteen

volumes of German MSS., diaries and journals of Wiederhold, Malzburg, the Lossberg Regiment, von Malsingen, Papet, Wiederhold, the Third Waldeck Regiment, Lotheisen, Reuber, Piel, Döhla, Ruffer, Dinklage, the Hessian Yäger Regiment and many volumes of reports on the battles of Long Island, Bennington, the Brandywine, and State papers relating to Prussia and America, Prussia and France, Prussia and Holland, Prussia and England and Washington and Frederick the Great, in all forty MS. volumes bearing on the American Revolution.

Sparks in his collection, now deposited in the Library of Harvard University, had a collection of papers of Steuben, the MS. of DeKalb's mission to America in 1768 (since printed in part in French), and the correspondence of Frederick the Great with his Ministers in London and Paris during the American War of Independence, procured in Berlin in 1844 by Wheaton, then American Minister there. In the *Magazine of American History* for 1877 there is a translation by A. A. Bierstadt of Bauermeister's *Narrative of the Capture of New York*, addressed to Captain von Wangenheim. This was part of the Bancroft collection. In the same volume is De Lancey's account of the capture of Fort Washington, with a map, from the original in Cassel, obtained by Prof. Joy for Mr. J. Carson Brevoort. The New York Historical Society has printed the journal of Krafft, a volunteer and corporal in Donop's regiment and a lieutenant in that of von Bose, who married in New York, became a clerk in the Treasury Department at Washington and died there in 1804. That Society has also printed the *Journal of General Rainsford*, the British commissary in charge of the German forces sent to this country by Great Britain. General Stryker obtained from the Archives at Marburg and Cassel many important papers freely and well used in his capital history of the *Battle of Trenton*. They include the court of inquiry of the Lossberg, Knyphausen and Rall regiments, lists of their officers and of those of the artillery and Yägers; maps by Wiederhold, Fischer and Piel; the letters of Donop and Rall, of the Elector of Hesse to Knyphausen; diaries of Piel, Minnigerode, Wiederhold and Ewald; reports of Donop's spies; and altogether some twenty MSS., all dealing with the battle of Trenton.

Mr. Charles Gross gave, in the *New York Evening Post*, an account of his visit to the Marburg Archives, where he found the journal of the Hessian corps in America under General v. Heister;

reports of Heister and of his successor in command, v. Knyphausen, and many hundreds of unbound papers. In the Kriegs Archiv (the War Office) in Berlin there are many official reports and many papers not arranged or catalogued.

Frederick Kapp described the Marburg Archives as including ten folio volumes of paper relating to the part taken by the Hessian corps in the American Revolution, the negotiations of the Landgrave and his Minister, v. Schlieffen, with the English Government, the correspondence of the commanding officers, with reports of operations, maps, sketches, etc. There are three volumes of the proceedings of the court-martial on the battle of Trenton, a number of Hessian war records indexed by Colonel Sturmfeder and hundreds of letters written by officers to their families, who were directed by the Landgrave to send them to him for perusal—involuntary but very good and complete witnesses of what they saw in America. Mr. J. Edward Lowell, author of that capital book, *The Hessians in the American Revolution*, in a paper printed in the second volume, second series of *Massachusetts Historical Society's Proceedings*, speaks of thirty-seven regimental journals and twelve volumes of papers at Marburg, and twenty-five in Cassel, in addition to a large collection in Berlin, a fragment of a journal of the Waldeck regiment at Arolsen, and that of an officer of the Anspach regiment in the Anspach Library. In his *Hessians in America*, Mr. Lowell refers to a dozen diaries and journals in the collection at Cassel. A copy of one of these, that of Wiederhold, which I own, covers the period from October 7, 1776, to December 7, 1780, with seventeen colored maps, plans, etc. At the end there is a note that Wiederhold died in Cassel in 1805, when the original descended to his son, who died at Marburg in 1863. From him it passed to his son, who went to America in 1880, but since then has not been heard from, so that the original has been lost or is, at least, no longer accessible. Bancroft and Washington Irving used copies (without the maps, etc.) made for them and speak of it as very valuable. Bound up with my copy are extracts from letters of Henel and Henkelman and Ries, giving an account of the capture of Fort Washington and the order changing the name to Fort Knyphausen; a list of the Hessian regiments and their commanders, and a memorandum that each battalion was ordered to keep an exact journal in duplicate, of which one copy was to be filed in the State Archives; lists of the troops sent to America and their

organization and general and field officers; list of casualties at the capture of Fort Washington, signed by Knyphausen; a bibliography of German books on the share of the German troops in the American War of Independence, among them the memoirs of Ochs and Senden, who lived to be general officers; various magazine articles on the same subject; the diary of a Hessian officer, Lt. v. Heister, in the *Zeitschrift für Kunst des Krieges*, Berlin, 1828; a fragment of an apparently original diary of a soldier, a copy of that of Rechnagel; extracts from the journal of Donop, and from that of the court of inquiry on the battle of Trenton; with reports of the Lossberg, Knyphausen and Rall regiments in that affair, and of Schäffer, Matthaeus, Baum, Pauli, Biel, Martin, all dated Philadelphia, 1778, and the finding of the court, dated April 23, 1782, and a fragment of its report. The author of this diary, Andreas Wiederhold, was a lieutenant in Rall's regiment and afterwards captain in the Knyphausen regiment. Lowell, in his capital book on *The Hessians in America*, makes frequent use of this diary, and in a note says that Ewald mentions Wiederhold as distinguished in 1762, so that he could not have been a very young man when he served here. Lowell used a copy in the Cassel Library, and notes that "it was made from the original by the husband of Wiederhold's granddaughter, and contains several interesting appendices," so mine may be a counterpart.

For many years Germany showed a good deal of regret for the part played by its soldiers in the English service in our struggle for independence. With her own rise and growth in importance as a nation, she has begun to assert the value of the services of the German allies of the British army. Eelking wrote an exhaustive history of their achievements, and Kapp a valuable book on the subject. Not long since a Hessian, Treller, published quite a good historical novel, *Forgotten Heroes*, in which he paid tribute to the Germans who fought under the English flag in America. Recently, another German author, Moritz von Berg, printed a long historical romance on the same subject, dedicated to the great-grandson of General von Heister, the leader of the Hessian soldiers in America. The story is drawn largely from the papers of the times still preserved in the public offices and by private families in the country which sent its sons to fight here. The scenes described contrast the home-life of the Hessians at the time and the new country in which the young soldiers made their campaigns,

and the historical portion deals with the Elector of Hesse and his share in supplying soldiers to his cousin, the King of England, to help in reducing his rebellious subjects in America. The events of the American War of Independence are followed very closely, and in an appendix are a number of hitherto unprinted letters and some documents drawn from the Archives at Marburg and from Eelking and other historical sources.

The book has value and interest as showing that Germany to-day takes a curious pride in the share her sons played in the history of the United States. Of even greater interest is the diary of a Hessian officer at the time of the American War of Independence, recently printed at Pyritz, on the anniversary of the founding of the Royal Bismarck Gymnasium of that place. It is the journal of Captain von Dörnberg, preserved by his family at their home in Hesse. It covers the period from March, 1779, to June, 1781, and gives his letters home from the time he left with his command until his return on the staff of General Knyphausen. There is a brief historical sketch of the War of American Independence, intended for the use of the boys of the Gymnasium or High School, and a short sketch of the life of the writer, who, after serving in the war with Napoleon and later as Hessian Minister in London, died in Cassel in 1819. His diary, journal and letters are mostly written in French, for that was the court language of the day, and his clever pencil sketches served to heighten their interest for the home circle, while their preservation until their recent publication shows that his descendants are not ashamed of his share of that service, which at least made America better known to the people of Germany, while it gave them lessons of value for their own improvement in the art of war. Although the campaigns took him through both North and South, it is characteristic of the German fidelity to duty that his descriptions are limited to his own modest share in the business of soldiering, and that he nowhere gives the slightest intimation that he saw the future greatness of the new republic. In this respect he and his countrymen were greatly unlike the French, whose letters and descriptions were full of their anticipations of the country to whose independence they contributed alike in men and money. The Dörnberg diary, however, has the value of an original and hitherto unprinted addition to the contemporary records of the American Revolution by one who did his best to prevent its successful issue.

Then there are novels by Spielhagen and by Norden, dealing

with the adventures of the German soldiers serving in the English army in the American Revolution.

The editor of the Dörnberg diary, Gotthold Marseille, headmaster of the Gymnasium at Pyritz, speaks of a privately printed family history of the Schlieffens, belonging to the present head of the family living in Pyritz, with a full account of the negotiations of Count Martin von Schlieffen, as Minister of Landgraf Frederick II of Hesse Cassel, with Colonel Faucit as the representative of George III. He also refers to Ewald's book on *Light Infantry*, published in Cassel in 1785, on his return from America, where he had learned many useful lessons, afterwards put in practice in his reorganization of the German troops for service in the wars with Napoleon. The continuation of Dörnberg's diary will add another to the numerous list of original papers by those who actually served here.

Pausch's journal was printed by Stone as No. 14 of *Munsell's Historical Series*, Albany, 1887, and as he was chief of the Hanau artillery during Burgoyne's campaign it has, of course, special interest. General Stryker got through Mr. Pendleton, then Minister in Berlin, an order from the younger Bismarck, then an assistant to his father, to examine the records at Marburg, and through a German, long resident in Trenton, he procured about a thousand pages of MS., covering everything relating to the Hessians at Trenton. The substance of this is now published in General Stryker's admirable and exhaustive *History of the Battle of Trenton*, rich in its original material, reproduced in text and notes and appendices for students of history. Taking advantage of the fact that a nephew was studying at Marburg, I wrote to him that Lowell said a descriptive catalogue of the Archives there relating to the American War of Independence could be made for six hundred marks, and asked him to call on Dr. Konnicke, for many years in charge. In reply to questions on the subject, he said it would cost four or five thousand marks and take a long time, adding that Eelking was too biassed to be trustworthy and he (Konnicke) had no sympathy with Americans. He, however, showed his collection of *Berichte*, *Tagebücher*, registers, letters between the Landgraf and Knyphausen. An assistant was much more agreeable and ready to give all the help in his power, and I still think that such a catalogue of the American records at Marburg would be well worth getting. The renewed interest of the Hessians in the part their ancestors took

in the American War of Independence is shown in a lecture on the subject by Colonel v. Werthern, of the Hussar Regiment Hesse Homburg, delivered by him at the officers' Casino and printed at Cassel in 1895. He refers to Eelking and to von Pfister's unfinished work on the same subject, Cassel, 1864, and to letters printed in the *Preussische Militär Wochenblatt* in 1833, and in the second volume of the *Kurkessischen Zeitschrift*. Colonel v. Werthern says his special purpose is to enlist the interest of owners of letters and journals of those who took part in the war, some of which had been shown to him. The publication of the Dörnberg diary shows that good results have followed his appeal. He estimates the number who remained in America as about 4500, and no doubt many of them became good Americans. He mentions the fact that the young volunteer, Ochs, who has left a capital book on his experiences as a soldier in America, rose to be a general in the Hessian army, and left a son who served from 1836 to 1850, and finally was in command of the regiment which Colonel v. Werthern was addressing in 1895.

Not without interest is Popp's diary—he was a soldier in the Bayreuth Anspach regiment—who came to this country in his twenty-second year, an illiterate young fellow. He began his diary on June 26, 1777, and carried it on after his return home, adding some curious verses—Das Lied von Ausmarsch, and Gedenken über die Hergabe der beiden Markgrafthümer Bayreuth u. Anspach in Franken an das Königliche Haus-Preussen—in which, with great patience and ingenuity, the left-hand column is a strong thanksgiving, but reading across the lines there is a right-hand column in which the Lord's Prayer is so divided as to change the sense into a bitter diatribe for this transfer of sovereignty. The original is preserved in the City Library of Bayreuth. It closes with some notes as late as 1796, and has some very good maps of the operations on the Hudson, on the Delaware and around Philadelphia. The copy of it which I own was made for me at Bayreuth, but the Librarian there said that he knew of no other material of the kind preserved in either public or private collections in that quaint old town so full of memories of the eighteenth century. In a little book of *Stories of Hessian War History*, by Freiherr v. Dittfurth—the name is of interest as it was that of one of the Hessian regiments which served here—there is a statement that from one Hessian village thirty men were sent with vari-

ous regiments to America, and twelve of them were heads of families. Reuber's diary shows that of these thirty only two died here and one remained in America. A large proportion of the so-called Hessians were volunteers from other parts of Germany, attracted by the high pay and the good care given by the British to their soldiers. In those days of distress and need, Germans were only too glad to escape compulsory military service in Prussia and other German States by volunteering in the regiments raised for the American war and its prospect of a new home.

Ditfurth demonstrates the utter falsity of the pretended letter of the Prince of Hesse Cassel, dated Rome, February 8, 1778, now accepted as one of Franklin's characteristic and clever bits of satire directed against Great Britain and its allies. It seems to have been revived in the German press in 1847 through an American "historian," Eugene Regnauld, of the St. Louis *Reveille*, and printed by Dr. Franz Löher, Professor and Member of the Royal Bavarian Academy of Sciences, in his *History of Germans in America*, Leipsic and Cincinnati, 1847, as an interesting, if doubtful, contribution to the contemporary documents of the American Revolution. A careful answer was supplied in the *Grensböten* of 1858 (No. 29) by the Keeper of the Archives at Cassel, in copies or extracts from the MS. correspondence of the Landgraf Frederick II with Heister and Knyphausen in reference to the Hessian losses at Trenton. In fact, the regiments that suffered most there now make that battle part of their record of honor. It is one of their traditions that Ewald first threw aside the powdered queues and heavy boots of the Hessians, clothing his Yäger battalion in a fashion suited to American climate and conditions, and thus set the example followed with great advantage in the Napoleonic wars. Other Hessian officers who had served here, notably Münchhausen, Wiederhold, Ochs, Emmerich, Ewald and others, applied the lessons they had learned here and became distinguished among the soldiers who showed great ability in restoring to Germany its independence of French mastery. The reputation brought home by the Hessians who served in America led Frederick the Great of Prussia to try to secure for his army the services of their officers, particularly of the Light Infantry and Yägers. Many of them won distinction in the wars with Napoleon against the French officers who had also served against them in America. The army lists of France, Germany and England are full of the names of those who

had learned useful lessons in the art of war in the American Revolution. Even the pay, clothing, food and allowances of the Hessian soldiers were increased in order to secure something like the advantageous conditions under which officers and men served under the British flag in America and in the other wars and expeditions that were carried on largely by German allied troops.

Of the German diaries and journals now accessible in print there are :

1. Melsheimer, printed in Montreal from a copy furnished by Stone.
2. Papet, in *Pennsylvania Magazine of History*.
3. Döhla, printed by Ratterman in *Deutsch. Amerik. Magazin*, Vol. i, No. 1, October, 1866.
4. Pausch, printed by Stone in *Munsell's Series*.
5. Baurmeister, in *Mag. of Amer. History*, 1877, by Bierstadt, of the N. Y. Historical Society.
6. Riedesel's *Letters, in His Life* by Eelking, reprinted in a translation by Stone.
7. Madame von Riedesel's *Letters*, first printed in Berlin in 1801, and since then in several editions both in Germany and in this country.
8. Schubert v. Senden's Journal (an extract was printed in 1839 in Vol. xlvii of the *Journal for Art, Science and History of War*, Berlin, Mittler).

Of others not yet printed there are MSS.:

1. Malsburg, mentioned by Eelking as in his possession in Meiningen in 1862. Of it Bancroft's collection (now in the Lenox Library, N. Y.) has a copy in two volumes, made by Kapp's direction, with his note that "Malsburg was a superficial observer and reporter," as well as of:—
2. Reuter's, of Rall's regiment, 1776-83.
3. Lotheisen's Journal of the Leib (Body Guard) Regiment, 1776-84, with a description of Philadelphia in 1777-7. Eelking notes that he had compared the original signed by Lotheisen, Marburg, August 1, 1784, with the copy.
4. Piel, Lossberg Regiment, 1776-83, Vol. i, includes Diary of Voyage, 1782, and Extracts from Trenton Court of Inquiry.
5. Steuernagel, Waldeck Regiment, 1776-83.
6. Wiederhold, Diary.
7. Ewald, *Feldzug der Hessen in Amerika*, copied from Ephemeriden, Marburg, 1785.

8. Journal of Lowenstein Regiment.
9. That of Plattes Battalion by Bauer.
10. That of Lossberg Regiment by Heusser.
11. That of Huyn Regiment by Kleinschmidt.
12. That of the Feldjäger Corps.
13. That of the Trumbach Regiment.
14. That of the Knoblauch Regiment.
15. That of the Mirbach Regiment.
16. Reports of Knyphausen and Riedesel.

Of printed books by Germans who served here, many are noteworthy, for instance, Friedrich Adolph Julius von Wangenheim, first lieutenant and later captain on the staff; came in 1777 from the ducal Gotha service into the Hessian Yäger Corps, and remained in it after the war. He published in Göttingen in 1781 a *Description of American Trees*, with reference to their use in German forests, and this little volume, dated at Staten Island, was, after his return, reprinted in 1787 in a handsome illustrated folio. He afterwards entered the Prussian forestry service and established near Berlin a small collection of American trees, still preserved with pride by his successors in office in charge of it and named "America."

Dr. Johann David Schöpf was a military surgeon in the German forces serving here during the American Revolution, and he printed in 1781 an account of his medical experiences, which was translated and reprinted in Boston in 1875. He also printed in 1787 a *Materia Medica Americanis Septentrionalis Potissimum Regni Vegetabilis*, in which he used material supplied to him by G. H. E. Muhlenberg, of Lancaster. Later he returned here and his *Travels*, published in 1788, are well known, and he did even greater service by making American botanists and men of other scientific pursuits better known to those of Germany by exchange of letters, etc.

In 1817 General Baron von Ochs published in Cassel his observations on *Modern Art of War*, containing much of his personal experiences during his service in this country as a subaltern. His *Life* has a very good account of his services in this country.

In 1796 Ewald, then a lieutenant-colonel in the Danish service, published in Schleswig his *Service of Light Infantry*, already printed in Hesse Cassel in 1784; it is full of references to his personal experiences in America, and it is significant of the man

that, after carrying off from the Hopkinson house at Bordentown, N. J., the volume edited by Provost Smith of the College of Philadelphia, containing young Hopkinson's Prize Essay, he returned it with thanks, and the book is still in the possession of the Hopkinson family as one of their rare treasures. In his little book he reports what General Howe told him of his personal experience during the old French War in America, and confirms it by his success with light troops in the American War of Independence. He gives a curious picture of Philadelphia in 1778, when Colonel von Wurmb had charge of the expeditions sent out to bring in supplies. He divided his force into three parties: one went out on the Lancaster road, another out the Marshall road, and the third out the Darby road—these three roads being parallel and only a half hour's march apart—the woods that lined them being thoroughly searched by patrols, so that the enemy, in spite of Washington and Morgan, could never reach the foragers. He speaks of the success of the Americans in their attacks on small and large English forces not properly protected by light infantry outposts. His own experience in the Seven Years' War in Europe was of service to him in America, and that again increased his efficiency in the war with France and Germany. He describes Pulaski's failure at Egg Harbor, and Donop's at Red Bank, and Arnold's in Virginia, and Armand's at Morristown, and Tarleton's success, and his own, as examples of what light infantry can do or fail in, just as they are well or badly led. He criticises Howe's failure to follow up his success at Brandywine, and calls it building a golden bridge for the enemy thus to neglect to drive him with fresh troops when he is in retreat. In the Jerseys, on Rhode Island, at Germantown, in Virginia, he saw just such examples of the neglect to use light infantry to advantage, and he points out many instances in which their value was shown on both sides. Ewald also printed at Schleswig, in 1798, 1800 and 1803, three small volumes, *Belehrungen über den Krieg*, with anecdotes of soldiers from Alexander and Pompey to Frederick the Great and Napoleon, and some of his own personal experience in America.

Seume, a well-known German writer, wrote at Halifax in 1782 his account of his experience in the Hessian service; it was first printed in *Archenholz' Journal* in 1789, and a translation is in the *Proceedings of the Massachusetts Historical Society* for November, 1887; it is also found in his Autobiography, published in his col-

lected works, and the changes between this and the earlier version have been unfavorably commented on.

Schlözer's *Briefwechsel*, ten volumes, 1776-1782, and his *Staats Anzeigen*, a continuation, in eighteen volumes, contain many papers of interest relating to the American War of Independence, notably a series of letters from an officer who served under Burgoyne, and dragged out weary months as a prisoner of war in Cambridge and later in Virginia. The Frankfort *Neuesten Staatsbegebenheiten* published letters by German officers describing the battle of Long Island.

v. Senden, *Tagebuch*, in *Zeitschrift für Geschichte des Krieges*, Berlin, Mittler, 8th and 9th parts, 1839. He too was a general officer at the time of his death.

v. Heister, *Diary*, in *Zeitschrift für Kunst des Krieges*, Berlin, Mittler, Vol. xii, No. 3, 1828.

Reimer, *Amerikanisches Archiv*, 3 vols., Brunswick, 1777-8.

Melsheimer, *Tagebuch*, Minden, 1776.

Riedesel, Mme., *Die Berufsreise nach Amerika*, Berlin, 1801 (and frequently reprinted). One of the most charming books that can be found—full of womanly heroism.

Leiste, *Beschreibung des Brittischen Amerika*, Wolfenbüttel, 1778.

Schlieffen, *Von den Hessen in Amerika*, 1782.

Brunswick Magazine, a Hessian journal reprinted in translation in the *Pennsylvania Magazine*, and a letter from the Duke to Riedesel advising all supernumerary officers and sick and wounded and men under punishment to remain in America.

Der Hessische Officier in Amerika, a comedy, Göttingen, 1783, has no great literary value or importance, but some local interest, as the scene is laid in Philadelphia during its occupancy by the British, and Indians, Quakers, British and German soldiers and native citizens are among the *dramatis personæ*. If it was not written by some one who had been here, it shows at least considerable familiarity with the conflicting parties during the Revolution.

Of recent works dealing with the German soldiers in the British army during the American War of Independence, the most notable are :

Max von Eelking, *Die Deutschen Hülfsstruppen im Nordamerikanischen Befreiungskriege, 1776 bis 1783*. Hanover, 1863, 2 vols. (An abridged translation was printed by Munsell in Albany in 1893.)

Eelking, *Leben und Wirken des Herzoglich Braunschweigschen General Lieutenants Friedrich Adolph von Riedesel*, Leipzig, 1856, 3 vols. (Stone's translation was printed by Munsell in Albany.) Esbeck, *Zweibrücken*, 1793.

Friedrich Kapp, *Der Soldatenhandel Deutschen Fürsten nach Amerika*, Berlin, 1864, and a second edition, 1874. His *Life of Steuben* and that of *De Kalb* were printed, the former in Berlin, 1858, and the latter in Stuttgart in 1862, and both in English in New York subsequently. His *Geschichte der Deutschen in Staate New York*, N. Y., 1869. His *Friedrich der Grosse und die Vereinigten Staaten von Amerika*, Leipzig, 1871.

Ferdinand Pfister, *Der Nordamerikamsche Unabhängigkeits Krieg*, Kassel, 1864.

An anonymous pamphlet, *Friedrich II und die neuere Geschichte Schreiben*, etc., Melsungen und Kassel, 1879, was translated (in an abridged form) and printed, with portraits of the two Electors of Hesse Cassel, father and son, who sent their soldiers to America under treaty with Great Britain, in *The Pennsylvania Magazine of History and Biography* in July, 1899. Besides its defense of the Hessian princes on the ground that their alliance was in conformity with their traditional and historical coöperation with Great Britain, and a desperate and successful war in behalf of Protestant liberty against French tyranny and Romanism and the free-thinking Voltairianism of Frederick the Great of Prussia, it is of interest from its demonstration of the falsity of Seume's Autobiography, and from its denial of the authenticity of the pretended letter of the Elector of Cassel, urging his general not to cure sick and wounded Hessian soldiers, as the dead ones returned more profit to their Landesvater! It is somewhat odd that this very letter should be claimed for Franklin as one of his literary burlesques by Tyler in his *Literary History of the American Revolution* (see Vol. ii, pp. 377, 8-80), while Bigelow in his *Life of Franklin* (Vol. ii, p. 393) and in his *Works of Franklin* (Vol. v, pp. 224 and 243, and Vol. vi, pp. 4-8), says it was written by Franklin not long after his arrival in France, in the latter part of 1776, and "is in some respects the most powerful of all the satirical writings of Franklin, equaled only by Swift in evolving both the horror and the derision of mankind." Franklin, in a letter to John Winthrop, sends from Paris on May 1, 1777, "one of the many satires that have appeared on this occasion"—i. e., the sale of soldiers by German princes.

This pretended letter of Count de Schaumburg is dated Rome, February 18, 1777, but is not printed in Sparks, or any of the authorized editions of Franklin's works. It still remains a question of when and where and how it was first printed and published,—it does not appear in Ford's *Franklin Bibliography*, which prints most of Franklin's clever *jeux d'esprit* that were printed on his press at Passy and soon found their way into print in Europe and America, but Ford printed it in his *Many-Sided Franklin*, p. 244; Bigelow says it appears in a French version in *Lescure Correspondence inédite secrète sur Louis XVI* (Vol. i, p. 31), Paris, but with no allusion to Franklin. No copy of it is found in the American Philosophical Society's collection of the imprints of the Passy Press, although Ford accepts Sparks' and Bigelow's attribution of the authorship to Franklin, and the internal evidence fully confirms the statement; it would be of interest to fix the time and place of its first publication, its fortune in being virulently attacked, and its use in exciting justifiable indignation against the Hessian princes who shared, with other German petty sovereigns, in the sale of subjects to fight under a foreign flag in a war which, as Frederick the Great said, was none of their business,—for these things have given it a value and importance far beyond the other satirical letters produced by Franklin at his busy Passy Press.

Bancroft tells us that Frederick the Great encouraged France to enter into the alliance with America—a counter stroke of vast importance, far outweighing in its advantages for the struggling young republic any benefit gained for Great Britain by its costly purchase of German soldiers. His hostility to England, however, did not lead him to fulfill his implied promise to join France in its active and substantial support of the Americans—no doubt rebellion and independence were more than he could encourage, little as he liked the British effort to crush them. It is curious that Lowell should speak of Franklin's smart satire as a clumsy forgery. Kapp, in his *Soldatenhandel* (Berlin, 1864), prints the letter in the Appendix 29, on p. 267, from Vol. No. 600 of the pamphlets in the Library of the Historical Society of New York, and described as printed on six octavo pages, without place of publication, but in very large type. He reproduces the original French with all its typographical mistakes; he prints on pp. 196–7 of his book a German version of the letter, and speaks of it as one of a flood of pamphlets, of which a very characteristic example was Mirabeau's

Avis aux Hessois et autres Peuples de l'Allemagne, Vendus par leurs Princes à l'Angleterre, à Cleves chez Bertol, 1777, which is now very rare, Kapp says, because the Elector of Cassel bought up all the copies he could find. It is very characteristic of the two, Mirabeau and Franklin, that the latter refers to his now famous letter only once, and that in sending it to his friend Winthrop, as one of the issues of the press then current, it nowhere appears in his printed works or correspondence, but in the *Life of Mirabeau*, by his son, it is said that the first work written by Mirabeau in Amsterdam was the pamphlet *Avis aux Hessois*, pp. 12, 1775, that it was translated into five languages, and reprinted twice by Mirabeau, in *L'Espion dévalisé*, chap. 16, pp. 195-209, and in *L'Essai sur le despotisme*, pp. 509-18, Paris, Le Gay, 1792, and Mirabeau himself speaks of it in his *Lettres de Vincennes* on March 14, 1784, and March 24, 1786. A reply to it, *Conseils de la raison*, was published in Amsterdam in 1777, by Smidorf, supposed to be inspired by the Minister of the Elector of Hesse Cassel, Schlieffen; to it Mirabeau replied in return in his *Réponse aux Conseils de la Raison*. All of these and other pamphlets, such as Raynal's on the side of the Americans, are now forgotten, but Franklin's clever skit continues to be reprinted and read, and to keep alive the feeling against the German princes who sent their soldiers to fight in a war which, as Frederick the Great said, was none of their business. However, the fact remains that it was through these Germans that America got many good citizens from their ranks, and better still, many of those who went home wrote of this country in a way that quickened emigration, in which, indeed, some of them took their part later on.

To this and similar attacks the Elector, through his Minister, Schlieffen, made answers in the Dutch newspapers, then the most largely sold, because they were free from censorship. Abbé Raynal, then an accepted historical authority, supported Mirabeau's attack by one that was met by Schlieffen in 1782. Kapp says Franklin himself both inspired and drew from this flood of French pamphlets against Great Britain and its German allies; but Kapp attributes this Hohendorff letter not to Franklin but to some French pamphleteer of Mirabeau's circle, and says it was revived by Löher at the time of the Know-Nothing agitation, and attributed to a St. Louis paper, although its falsity was shown in an article printed in the *New Military Journal*, Darmstadt, 1858, No. 14.

It was, as Bancroft tells us, a Count Schaumburg who acted as the go-between of the British Ministry, who made unsuccessful offers of pay for troops to the Duke of Saxe Weimar, dated Nov. 26, 1777: was that known to Franklin when he wrote his letter in the name of Count Schaumburg? No doubt he chose it in full consciousness that it would be familiar to his European readers, who would thoroughly enjoy seeing the English agent thus serving as a thin disguise for the Hessian prince, and the indignation excited by this clever and effective bit of satire would be directed alike against master and man, against prince and agent, together trading for soldiers.

In the French service under Rochambeau there were many German soldiers, and Ratterman in *Der Deutsche Pionier*, Vol. xiii, 1881, gives an account of them, notably the Zweibrücken regiment, of which two princes or counts of that name were respectively colonel and lieutenant-colonel. It is worth noting that Lafayette wrote to Washington of a visit to them in Zweibrücken long after the American war, when he met "Old Knyp" and officers who had served both with and against him there. There was a battalion from Trier in the Saintonge regiment under Custine, himself from Lothringen. There were Alsatians and Lothringers in light companies attached to the Bourbonnais and Soissonais regiments. There were many Germans in the Duke de Lauzun's cavalry legion, whose names are printed from the records preserved in Harrisburg. In the army that made part of d'Estaing's expedition against Savannah, in the autumn of 1779, there was an "Anhalt" regiment, 600 strong; of individual German officers with Rochambeau there were Count Fersen, his chief of staff, Freiherr Ludwig von Closen Haydenburg, his adjutant, Capt. Gau, his chief of artillery, and a Strasburg Professor Lutz, his interpreter. The Count of Zwei-Brücken (Deux-Ponts) published his *American Campaigns* in Paris in 1786, and his pamphlet was translated and reprinted by Dr. Green, of the Massachusetts Historical Society. Count Stedingk and Count Fersen both took service with Sweden, the latter to fall a victim to a popular outbreak, the former to take part in the Peace of Paris in 1814.

Von Closen returned to Europe, became an officer of the household of Marie Antoinette, and died in 1830, at Zweibrücken. Custine rose to high command in the French Revolution only to end his days on the guillotine; his biography has been printed

both in French and German. Ratterman thinks at least one-third of Rochambeau's army at Yorktown consisted of Germans, Alsations, Lothringers and Swiss. Gen. Weedon, he says, was born in Hanover, served in the Austrian War, 1742-81, and for his services at Dettingen was promoted first to ensign and next to lieutenant, coming in that rank to America in the Royal American Regiment under Bouquet. He became a captain in the Third Virginia, and colonel of the First Virginia, and later a brigadier-general of the Continental army. The Germans under Ewald were driven back by the Germans under Armand at Gloucester, Va., and in the siege of Yorktown, Deux-Ponts led his Germans in the attack on a redoubt defended by Hessians, and at several points commands were given on both sides in German. Washington and the King of France both commended the valor of the Zweibrücken regiment. German soldiers held the trenches on both sides when the surrender

- was finally made. German regiments under the French and American flags received the surrender of German regiments—Anspach, Hessian, serving under the British flag—and the officers and men joined in warm greetings; the Anspachers offered to serve with their countrymen in Lauzun's Legion, an offer declined as a violation of the terms of capitulation. The German novelist Sealsfield, in his story *Morton*, Stuttgart, 1844, describes Steuben's share in this crowning victory. Mr. J. F. Sachse has drawn from his large store of material a letter written by the Duke of Brunswick on February 8, 1783, to Gen. Riedesel, in view of the return of his force to Germany, in which he says that as not half of his officers and subordinates can remain in active service at home, while many of them must be reduced in rank and more discharged altogether, all who can had better remain in America, as he would not burthen his people and his war budget with pensions for young and able-bodied men; he therefore authorizes and recommends the discharge of officers, especially those of the staff, with six months' pay out of the regimental funds; non-commissioned officers, too, should be encouraged to take their discharge and stay in America, so that companies may be reduced to fifty in the infantry and thirty-six in the dragoons, and these must all be natives of Brunswick; all men under punishment or charged with offenses or physically unfitted must be left behind. Chaplains, paymasters, surgeons, etc., who can make their living in America, were recommended to stay here. In this way, and with those who died in the service or deserted,

the force returning to Brunswick was greatly reduced. This letter is printed in the *Brunswick Magazine* of June 4, 1825; the same and earlier numbers contain extracts from Papet's diary, which was then in possession of his son-in-law, Captain Heusler, in Brunswick. It was not until April 29, 1783, that peace was officially pronounced to the troops, and they sailed from Quebec on August 1st for a six weeks' voyage home.

Papet says that the deserters had a price put on their heads, and many of them were arrested and brought back, so that the Duke's orders were not very literally obeyed. On their return to Brunswick the division was reduced to an infantry regiment of two battalions and a small dragoon regiment. Among them were some black men enlisted by Gen. Riedesel as drummers. Until 1806 the dragoons served as guard of the palace—a sort of recognition of their services. Riedesel named one daughter "Canada," she died in Canada; and another "America," who died in 1856. Eelking adds to his *Life of Riedesel* a list of officers, and among them Chaplain Melsheimer figures as a deserter, in 1779; while Paymaster Thomas remained in America after the peace of 1783, and so did Lieut. v. Reizenstein, Lieut. v. König, Ensign Langerjahn, Ensign Kolte, Lieut. Bielstein, Lieut. Conradi, Lieut. v. Pui-seger, and Ensign Specht, while some of those reported "deserters" and "missing" no doubt remained in America. It is curious that in Riedesel's *Life*, with its voluminous correspondence with the Duke of Brunswick, there is no mention of the letter recommending that his officers and men should be encouraged to remain in America. It looks very much as if Eelking thought it indiscreet to print it, as likely to invite hostile criticism, a caution that does not seem to have deterred the editor of the *Brunswick Magazine* in 1825, a time when the censor kept a sharp eye on anything that might lessen the respect for the Landesvater. In its way it fully justifies Franklin's clever skit at the Elector of Hesse in the fictitious letter to his commander in America. There must still remain in Marburg and Cassel and Berlin and Brunswick, and in the private families of Germany, much interesting and valuable material throwing light on the Germans who served under the British flag in the War of American Independence. Is it not well worth while to get a complete descriptive catalogue of the papers in the Marburg Archives? The expense would not be great, and that once secured, it would not be difficult to have similar catalogues made for other

public collections. In the meantime efforts could be made to print such items of these catalogues as are new, and to enlist the help of private owners of papers of the kind in securing copies to use in printing in part or in whole for historical students.

There is no better example of the interest in such material than the letters of Mme. Riedesel. Printed in Berlin in 1800, and again in 1801, they first became known to English readers through portions of them printed by Gen. Wilkinson in his *Memoirs*, and reprinted in Silliman's *Tour in Canada*. In Germany they were reprinted in 1827, and again in 1881.

The original edition was intended only for the family, and Gen. Riedesel himself died in 1800, before it appeared. His widow survived until 1808. Her daughters "Canada" and "America" perpetuate in their names their place of birth. The only son died in 1854, and with a grandson the last of the family ended. American readers will always find interest in Mme. Riedesel's simple narrative of her life here. Mme. Riedesel's *Letters* were first issued in 1799 in a privately printed edition for the family and their friends, and regularly published in 1800; the latest German edition is that published in Tübingen in 1881, in which the letters of Riedesel, together with brief biographies of husband and wife, and an account of their children are given. It is stated in the Preface that of the 4300 Brunswick soldiers led by Riedesel from Germany to America only 2600 returned home with him. Of the 1700 lost to their native country many were of course a gain for America. Riedesel died on January 5, 1800, after a harsh experience in the Napoleonic wars. His wife died on March 29, 1808; their only son died in 1854, and the daughter "Canada" died in childhood; the daughter "America" married and left children.

General Stryker in the Appendix to his *History of the Battle of Trenton* prints (on pp. 396, etc.) the pretended letter from the Landgraf of Hesse, in which there is mention of the losses at Trenton, and at p. 401 Gen. Heister's report of that battle, and on p. 403 the real letter written by the Prince of Hesse to Knyphausen, dated Cassel, 16th June, 1777, in which he speaks of the painful shock of the news, and directs a court of inquiry to investigate and a court-martial to try those responsible, and another of April 23, 1779, insisting on a detailed explanation of the captains and others as to the finding of the original court; these proceedings continued and a final verdict was arrived at in New York in Jan-

uary, 1782, accompanied by a petition for mercy for those inculturated but surviving. Rall and Dechow had paid the penalty with their lives. This was signed (among others) by Schlieffen in April, 1782, and thus that incident was closed by the Elector's pardon to the survivors from the penalty imposed by the court-martial. The actual correspondence consisted of Gen. v. Heister's report, dated New York, January 5, 1777, answered by the Elector on April 7, regretting that Rall should have been entrusted with a post to which he was not entitled by seniority or service. That Kapp is mistaken in crediting the pretended letter to Mirabeau is best shown by comparing his wordy *Avis aux Hessois* with the short, sharp, pungent letter that bears internal evidence of Franklin's master hand. Reprinted by Ford and Stryker and Bigelow and Tyler, it is easily accessible, while the *Avis aux Hessois* of Mirabeau is much less known, and a reprint of it may be of interest as one of the forgotten pamphlets of the man who later on played such a leading part in the French Revolution, yet failed to do for his country a tithe of the good that Franklin did for America. Still, it must not be forgotten that Mirabeau was one of the earliest French advocates of American independence, and that his *Avis aux Hessois* was a warning note, the opening of a war of words, of a long-drawn-out battle of pamphlets, in which the American cause was fought for by French allies on the one side, and on the other by Germans in the pay of English and Hessian authorities. Undoubtedly Mirabeau's influence led Beaumarchais to his best efforts to supply men and provisions and munitions of war for the American cause, culminating, largely, no doubt, through Franklin's efforts, in the alliance which played so great a part in the final result.

Of even greater value, however, is Schiller's eloquent protest in his *Kabale und Liebe* against the sale of German soldiers to Great Britain to be used against America. Frederick the Great denounced his cousin of Hesse for selling his subjects to the English as one sells cattle to be dragged to the shambles. Napoleon made it one of his reasons for overthrowing the house of Hesse Cassel and making the country part of the Kingdom of Westphalia, over which his brother reigned. Lowell praises Mirabeau's pamphlet as an eloquent protest against the rapacity of the German princes who sold their subjects to Great Britain, and a splendid tribute to the patriotism of the Americans. Fortunately the large number of Germans who served in the American army on the patriot side,

from Steuben and De Kalb down to the humblest soldiers, greatly helped to secure American independence. Although Franklin's letter is printed in both Ford and Bigelow's lives and books of Franklin, it may not be without interest to reproduce the original French and the pamphlet by Mirabeau, *Avis aux Hessois*, the first of a long series of pamphlets, notably those by Schlieffen on the German side and by Raynal on the American side, for in their day these were most effective weapons in that war of pamphlets and books which greatly strengthened the American cause abroad. These copies I owe to the kindness of Mr. Wilberforce Eames, of the Lenox Branch of the New York Public Library; the originals are part of the wealth of original papers and pamphlets and books collected by Mr. Bancroft as material for his history and now owned by the Lenox Library. Their free use for students of American history is one of the advantages of this present generation.

APPENDIX.

I.

LETTRE DU LANDGRAVE DE HESSE, AU COMMANDANT DE SES TROUPES EN AMERIQUE.

Monsieur le Baron de Hogendorf je ne puis assés vous témoigner combien la Relation que vous m'avez Envoyé m'a comble de joye—l'a conduite de mes hessois qui sont fait Immoles si heroiquement pour une cause qui nous est si Etrangere, confirme toute l'opinion que j'avois de leurs bravoure, & Justifie l'Espoir que j'avois fondée sur leur attachement à mes Interêts—mais je ne puis pardonner aux novellistes Anglois d'avoir diminué si fort, le nombre de nos morts—pourquoy n'avoir, pas à vouée franchement, qu'aulieu de neuf cent nous en avons perdu 1700! En veritié je ne trouverois Guère mon Compte a ce calcule, & je ne puis l'attribuer qu-a un motif très Interresse de leurs part—ces Messieurs Croyent-ils donc, que trentes Guinnés de plus, ou de mois me sont Indifferents! & cela, après un voiage aussi couteux, que celuy que je viens de faire, & qui, m'a fait contracter tant de nouvelles dettes . . . non, mon cher, que votre Zèle pour mon service, & vos desirs, pour contribuer a mes plaisirs Redoublent efforts en secondant par tous les moiens possibles, toutes les Occasion qui pourrois se presenter pour animer, de plus en plus mes fidèles sujets a se sacrifier *Jusqu'au dernier même*. Pour Repondre à des vués aussi légitime, que necessaries.

Temoignés bien de m'apart au Colonel M—— combien je suis mécontent de la conduite qu'il a tenu jusqu-ici,—quoy ? Le seul de tous nos corps qui n'a perdue qu'un seul homme jusqu'a présent —c'est, ce couvrir de honte, & Redoubler mes peines;—la Signora F—— que je viens, d'Engager en *Italie* va me couter au de la de Cinq cents Guinées par an, & puis ces Anglois, voudroient encore mechicaner sur les blessés, & les estro piés—mais non ils me les payeront selon le même Tarif fixé pour les morts—si non, j'aime mieux, qu'ils Imitent l'Exemple de ceux qui se sont laissés prendre à Trenton—en effets—à quoy meserviroient ses misérables ! ici ? Ils ne sont plus a bon à Rien ; d'ailleurs, ces maudits Rebelles qui, tirent toujours si bas, les auront sans doute Rendus Impuissants, mais quant à cela, les Jesuites que j'ai envie d'appeller dans mes etats, s'en acquitteront mille, & mille fois mieux, & Répareront bientôt, toute la de population, qui ne s'y manifeste déjà que trop, c'est un Expedient que m'a donné a Rome, le Cardinal T—— qui m'a promis de me menager cette affaire avec toute la dextérité Imaginable,—Vous ne sauriez croire (matil dit ;) combien la vuë de tant de bellés Guinées Ranime la vigueur. Or quoy qu'il en arrive jouissons du présent & ne nous mettons pas en peine du Reste ; sur ce, je prie Dieu, qu'il vous tienne Monsieur le Baron de Hogendorf, en sa sainte, & bonne Garde, à Cassel, 1777.

II.

AVIS AUX HESSEIS ET AUTRES PEUPLES DE L'ALLEMAGNE
VENDUS PAR LEURS PRINCES À L'ANGLETERRE.

À CLEVES. CHEZ BERTOL. 1777.

*Quis furor iste novus ? quo nunc, quo tenditis ?—
Heu ! miseri cives ! non hostem, inimicæque castra ;
. . . . Vestras spes uritis.—VIRG.*

Intrépides Allemands ! quelle flétrissure laissez vous imprimer sur vos fronts généreux ! quoi ! c'est à la fin du dix-huitième siècle, que les peuples du centre de l'Europe sont les satellites mercenaires d'un odieux Despotisme ! *quoi !* ce sont ces valeureux Allemands, qui défendirent avec tant d'acharnement leur liberté contre les vainqueurs du monde, & braverent les armées Romaines, qui, semblables aux vils Africains, sont vendus & courent verser leur sang dans la cause des tyrans ! ils souffrent qu'on fasse chez eux LE COMMERCE DES HOMMES ! qu'on dépeuple leurs villes, qu'on épuise leurs campagnes, pour aider d'insolens dominateurs à ravager un autre hemisphère ! . . . Partageres vous, longtemps encore, le stupide aveuglement de vos maîtres

. . . . vous, respectables soldats ! fidelles & redoutables soutiens de leur pouvoir ! de ce pouvoir qui ne leur fut confié que pour protéger leurs sujets ! vous êtes vendus ! Eh ! pour quel usage ! justes dieux ! Amoncelés comme des troupeaux dans des navires étrangers, vous parcourez les mers : vous volez à travers les écueils & les tempêtes, pour attaquer des peuples qui ne vous ont fait aucun mal ; qui défendent la plus juste causes, qui vous donnent le plus noble des exemples. Eh ! que ne les imitez vous, ces peuples courageux, au lieu de vous efforcer de les détruire ! ils brisent leurs fers : ils combattent pour maintenir leurs droits naturels, & garantir leur liberté : ils vous tendent les bras : ils sont vos frères : ils sont doublement : la nature les fit tels, & des liens sociaux ont confirmé ces titres sacrés : plus de la moitié de ces peuple est composée de vos compatriotes, de vos amis, de vos parens. Ils ont fui la tyrannie aux extrémités du monde ; & la tyrannie les y a poursuivis : des oppresseurs, également avides & ingrats, leur ont forgé des fers ; & les respectables Américains ont aiguisé ces fers, pour repousser leurs oppresseurs. . . . Le nouveau monde va donc vous compter au nombre des monstres, affamés d'or & de sang, qui l'ont ravagé ! Allemands, dont la loyauté fut toujours le caractère distinctif, ne frémissiez vous pas d'un tel reproche ? A ces motifs, faits pour toucher des hommes, faut-il joindre ceux d'un intérêt également pressant pour des esclaves & des citoyens libres ?

Savez vous quelle nation vous allez attaquer ? Savez vous ce que peut le fanatisme de la liberté ? C'est le seul qui ne soit pas odieux : c'est le seul respectable ; mais c'est aussi le plus puissant de tous. . . . Vous ne le savez pas, ô peuples aveugles ! qui vous croyez libres, en rampant sous le plus odieux des Dèspotismes : celui qui force au crime ! Vous ne le savez pas, vous que le caprice ou la cupidité d'un Dèspote peuvent armer contre des hommes, qui méritent de l'humanité entière, puis qu'ils défendent sa cause, & lui préparent un asile ! ô guerriers mercenaires ! ô satellites des tyrans ! ô Européens énervés ! vous allez combattre des hommes, plus forts, plus industrieux, plus courageux, plus actifs, que vous ne pouvez l'être : un grand intérêt les anime : un vil lucre vous conduit : ils défendent leur propriété, & combattent pour leurs foyers : vous quittez les vôtres, & ne combattez pas pour vous : c'est au sein de leur pais, c'est dans leur climat natal, c'est aidé de toutes les ressources domestiques qu'ils font la guerre contre des bandes, que l'océan a vomies, après avoir préparé leur défaite. Les motifs les plus puissans & les plus saints excitent leur valeur, & appellent la victoire sur leurs pas. Des chefs, qui vous méprisent, en se servant de vous, opposeront de vaines harangues à l'éloquence irrésistible de la liberté, du besoin, de la nécessité. Enfin, & pour tout dire en un mot, la cause des Américains est juste : le ciel & la terre réprouvent celle que vous ne rougissez pas de soutenir :

O Allemands ! qui donc a soufflé, parmi vous, cette soif de combattre, cette frénésie barbare, cet odieux dévouement à la tyrannie ?

Non : je ne vous comparerai pas à ces fanatiques Espagnols, qui détruisoient pour détruire, qui se baignoient dans le sang, quand la nature épuisée forçoit leur insatiable cupidité à faire place à une passion plus atroce. Des sentimens plus nobles, des erreurs plus excusables vous égarent. Cette fidélité pour vos chefs, qui distingua les Germains vos ancêtres, cette habitude d'obéir, sans calculer qu'il est des devoirs plus sacrés que l'obéissance, & antérieurs à tous les sermens, cette crédulité qui fait suivre l'impulsion d'un petit nombre d'insensés ou d'ambitieux ; voilà vos torts ; mais ils seront des crimes, si vous ne vous arrêtez au bord d'abîme . . . déjà ceux de vos compatriotes, qui vous ont précédés, reconnoissent leur aveuglement ; ils désertent ; & les bienfaits de ces peuples, qu'ils égorgoient n'aguère, & qui les traitent en frères, aujourd'hui qu'ils ne leur voient plus en main le glaive des bourreaux, aggravent leur remords, & doublent leur repentir.

Profitez de leur exemple, ô Soldats ! pensez à votre honneur : pensez à vos droits : . . . n'en avez vous donc pas comme vos chefs ? . . . Oui : sans doute : on ne le dit point assez : les hommes passent avant les Princes, qui pour le plupart, ne sont pas dignes d'un tel nom : laissez à d'infâmes courtisans, à d'impies blasphémateurs, le soin de vanter la prérogative royale : & ses droits illimités : mais n'oubliez point que TOUS ne furent pas faits pour UN : qu'il est un autorité supérieure à toutes les autorités : que celui qui commande un crime, ne doit point être obéi : & qu'ainsi votre conscience est le premier de vos chefs. . . .

Interrogez la cette conscience : elle vous dira, que votre sang ne doit couler que pour votre patrie : qu'il est atroce de recevoir de l'argent pour aller égorger, à plusieurs milliers de lieues des hommes, qui n'ont d'autres relations avec vous que celles, qui doivent leur concilier votre bienveillance.

Elle prétend faire une guerre légitime, cette Métropole, qui s'épuise pour ruiner ses enfans ! elle réclame ses droits. & ne veut les discuter qu'avec la foudre des combats ! . . . mais fussent-ils réels, ces droits, les avez vous examinés ? Est-ce à vous à juger ce procès ? Est-ce à vous à prononcer l'arrêt ? Est-ce à vous à l'exécuter ? . . . Eh ! qu'importent après tout ces vains titres si problématiques & si contestés ? L'homme, dans tous les pays du monde, a le droit d'être hereux. Voilà la première des loix : voilà le premier des titres : des colonies ne vont point fertiliser des terres nouvelles, augmenter la gloire & la puissance de la mère-patrie, pour en être opprimées . . . le sont-elles ? Elles ont le droit de secouer le joug : parce que le JOUG n'est pas fait pour l'homme.

* Mais, qui vous a dit que les Anglois avoient signé l'arrêt de proscription lancé contre les Américains ? . . . Braves Allemands ! on vous a

trompé. N'avissez pas par un tel soupçon une nation qui a produit de grands hommes & de belles loix, qui nourrit longtems dans son sein le feu sacré de la liberté, & mérite, à ces titres, du respect & des égards . . . Hélas ! dans les isles Britanniques, comme dans le reste de l'univers, un petit nombre d'ambitieux agite le peuple & produit les calamités publiques. Le moment de crise est arrivé. l'Angleterre n'est divisée, malheureuse, en guerre contre ses frères, que parce que le Dèspotisme lutte depuis quelques années avec avantage contre la liberté. Ne croyez donc pas défendre la cause des Anglois : vous combattez pour l'accroissement de l'autorité de quelques ministres qu'ils abhorrent & méprisent.

Les voulez vous connoître, les véritables motifs qui vous mettent les armes à la main ?

Un vain luxe, des dépenses méprisables ont ruiné les finances des Princes qui vous gouvernent ; leurs spoliations ont tari leurs ressources ; ils ont trop souvent trompé la confiance de leurs voisins, pour y recourir encore. Il faudroit donc renoncer à ce faste excessif, à ces fantaisies sans cesse renaissantes, qui sont leur occupation la plus importante ; ils ne peuvent s'y résoudre ; ils ne le feront pas ; l'Angleterre épuisée d'hommes & d'argent, achete à grands frais de l'argent & des hommes Vos Princes saisissent avidement cette ressource momentanée & ruineuse : ils levent des Soldats : ils les vendent : ils les livrent : voilà l'emploi de vos bras : voilà à quoi vous étiez destinés, Votre sang sera le prix de la corruption, & le jouet de l'ambition. Cette argent, qu'on vient d'acquérir, en commerçant de vos vies, paiera des dettes honteuses, ou aidera à en contracter de nouvelles. Un avide usurier, une méprisable Courtisane, un vil histrion, vont recevoir ces guinées données en échange de votre existence.

O dissipateurs aveugles ! qui vous jouez de la vie des hommes, & prodiguez les fruits de leurs travaux, de leurs sueurs, de leurs substance, un repentir tardif, des remords déchirans seront vos bourreaux, mais ne soulageront pas ces peuples que vous foulez ; vous regretterez vos laboureurs & leurs moissons, vos Soldats, vos sujets ; vous pleurerez sur les malheurs, dont vous mêmes aurez été les artisans, & qui vous envelopperont avec tout votre peuple. Un voisin formidable sourit de votre aveuglement, & s'apprête à en profiter ; il forge déjà les fers, dont-il médite de vous charger : vous gémirez sous le poids de vos chaînes, fussent-elles d'or ; & votre conscience, alors plus juste que votre cœur ne fut sensible, sera la furie vengeresse des maux que vous aurez faits.

Et vous peuples trahis, vexés, vendus, rougissez de votre erreur : que vos yeux se dessillent : quittez cette terre souillée du dèspotisme : traversez les mers : courez en Amérique ; mais embrassez y vos frères ; défendez ces peuples généreux, contre l'orgueilleuse rapacité de leurs persécuteurs : partagez leur bonheur : doublez leurs forces : aidez-les

de votre industrie : appropriiez vous leurs richesses en les augmentant : tel est le but de la société : tel est le devoir de l'homme, que la nature a fait pour aimer ses semblables, & non pas pour les égorger : apprenez des Américains l'art d'être libre, d'être heureux, de tourner les institutions sociales au profit de chacun des individus qui composent la société : oubliez dans le respectable asile, qu'ils offrent à l'humanité souffrante, les délires, dont vous fûtes les complices & les victimes : connoissez la vraie grandeur : la vraie gloire : la vraie félicité : que les nations Européennes vous envient, & bénissent la modération des habitants du nouveau monde, qui dédaigneront de venir les punir de leurs forfaits, & de conquérir les terres dépeuplées, que foulent des tyrans à oppresseurs & qu'arroseent de leurs larmes des esclaves opprimés.

CALENDAR OF
THE CORRESPONDENCE OF
MAJOR-GENERAL NATHANAEL GREENE,
QUARTERMASTER-GENERAL U. S. A.,

IN THE LIBRARY OF THE AMERICAN PHILOSOPHICAL SOCIETY.

Prepared under the Direction of the Committee on Historical Manuscripts.

(*Read April 6, 1900.*)

LETTERS TO GENERAL NATHANAEL GREENE.

ABEEL, JAMES F. (Col.) :

No date.—Acknowledging favor of 27th inst. Report of the work on portmanteaus and tents. Vol. v, No. 90.

No date.—Report and drawing of the ground between Parsippany Meeting House and Boon Town (Boonton, N. J.).

Vol. ix, No. 11.

1778.—*April 16. Beverwick.*—Business at Pompton. Public indebted to Mr. Faesh at least £10,000 for iron and other articles. Will try and pay his share, which is trifling.

Vol. x, No. 13.

1778.—*November 8. Morristown.*—Horses taken by him for necessary duties. Hopes he has not done wrong.

Vol. x, No. 46.

ABEEL, JAMES F. (Col.) (*continued*):

- 1778.—*November 9. Morristown.*—Acknowledging favor of 5th inst. Concerning the number and price of various articles ordered by General Greene. (Copy.) Vol. x, No. 42.
- 1778.—*November 9. Morristown.*—A draft of letter No. 42 in Vol. x of same series. Vol. x, No. 49.
- 1778.—*November 11. Morristown.*—Destination of various stores. Suffering for want of forage; unless other methods are devised to procure it, the supplies must cease. Lazy conduct of wagoners who loiter on the road, with no one to call them to account. Vol. x, No. 44.
- 1779.—*February 11. Morristown.*—Sends the bearer, Mr. Maerschalk, to procure some cash if possible. Number of tools and great quantity of horseshoes contracted for, take a large amount of money. Cost of iron. Will furnish a general return of stores the following week. Vol. iv, No. 2.
- 1779.—*February 12. Morristown.*—Acknowledging favors of 11th and 12th insts. (from Gen. Greene?). Concerning tents, wagon harness, axes, etc. Number of wagons sent him. Question of forage. Want of cash. Price of iron. Sent him two saddles of venison. Vol. viii, No. 3.
- 1779.—*February 20.*—Informing him how he may procure some cider. Vol. iv, No. 3.
- 1779 (?)—*February 21.*—Asking Gen. Greene to write to Gen. Knox about repairing tents, and to Capt. Bruen to send him the ship carpenters. Poor quality of axes made in Pennsylvania. In need of cash to pay for iron, horseshoes, etc. Vol. xi, No. 84.
- 1779.—*February 24. Morristown.*—Want of leather for the harness makers; asks him to apply to His Excellency for an order. Vol. viii, No. 4.
- 1779.—*February 28. Morristown.*—Asks for a portion of the supply of cash sent Gen. Greene by Mr. Pettit. Numerous calls on him. Will do all in his power to procure a good, honest girl for Mrs. Greene. Vol. ix, No. 3.
- 1779.—*May 14. Morristown.*—Sends returns by bearer, Mr. Maerschalk. Orders received for tents. Applied to Mr.

ABEEL, JAMES F. (Col.) (*continued*):

Lewis, quartermaster of Morristown, for horses, and in his absence to his substitute, but was always disappointed.

Vol. vii, No. 95.

1779.—*May 19. Morristown.*—Acknowledging favor of 17th inst. Tent-makers will be idle for want of twine. Reason for his writing Mr. Weiss rather a warm letter; no dislike to him, however, and would do him any service in his power. Account of tents issued and those on hand. Vol. v, No. 30.

1779.—*May 22. Morristown.*—Has discovered the reason of the deficiencies in the stores, sent off to Mr. Weiss from Morristown. Many of the articles found in the possession of the inhabitants of that town, all of whom will be in gaol before night. Wants to know if the men in the wagonmaster's department shall be sent to camp or tried by the civil law. Great want of twine for the tent-makers. Vol. v, No. 55.

1779.—*May 23. Morristown.*—Acknowledging favor of 22d inst. Will set the saddlers to work at the portmanteaus. Has found sufficient proof against a number of inhabitants who were, and are still, in the service; articles belonging to the Commissary-General found in their houses. The guilty shall be punished. Mrs. Abeel will be happy to see Gen. and Mrs. Greene at Morristown. Vol. v, No. 68.

1779.—*May 26. Morristown.*—Acknowledging favor of 23d inst. Concerning the making of tents. Will be out of twine unless Mr. Mitchell answers his repeated demands for some. His men working night and day. Desires an order to enable him to procure leather. Vol. v, No. 75.

1779.—*May 26. Morristown.*—Acknowledging your favor of 25th inst. Tents and canteens to be forwarded at once. Never mentions a syllable in any of the letters received from Gen. Greene. Has found nine persons guilty of felony, and seventy of plundering the stores in the public wagons.

Vol. v, No. 74.

1779.—*October 21. Morristown.*—Acknowledging favor of 16th inst. Has sent large parcel of nails to Col. Hay. The court thought it had sufficient proof against Mr. Lewis to call a court-martial. It is certain that he has made an estate of

ABEEL, JAMES F. (Col.) (*continued*):

about £20,000 in the course of two years. Mentions various proofs of this man's roguery. Denies having lost his temper in court; has been quiet under many insults. Mr. Lott and Mr. Livingston in town; their wives the guests of Mrs. Abeel.

Vol. iii, No. 32.

1779.—*October 28. Morristown.*—Mr. Weiss' order for a number of articles shall be attended to. Gen. Sullivan's demand for 150 tents; cannot procure duck. Court of inquiry finished. Mr. Lewis failed to produce any evidence against him (Abeel). If a court-martial is called, can bring enough proof to hang Lewis. Implores Gen. Greene to let some steps be taken to bring the villain to justice and clear his (Abeel's) character.

Vol. iii, No. 31.

1779.—*November 7. Morristown.*—Acknowledging favor of 4th inst. In accordance with Gen. Greene's letter, he and Lord Stirling set off to view the ground. Will try and have all the tools ready when called for.

Vol. ix, No. 5.

1779.—*November 7. Morristown.*—Concerning a quantity of refined iron which he thinks it would be an advantage to the Department to buy.

Vol. ix, No. 4.

1779.—*November 10. Morristown.*—Enclosing a rough sketch of a beautiful place for an encampment, abounding in wood, water and every other necessary. Preparing everything as fast as possible. Will have fowls, turkeys and potatoes, etc., provided in time for the General.

Vol. iii, No. 1.

1779.—*November 17. Morristown.*—Has provided quarters for Mrs. Greene and Mrs. Olney near his house and will do everything to make their situation agreeable.

Vol. ix, No. 6.

1779.—*November 22.*—Position of Col. Willet's regiment.

Vol. ix, No. 9.

1779.—*November 23. Morristown.*—Will put locks on doors to secure Mrs. Greene's clothes. Position of troops. By 10 o'clock will report on the ground near Mr. Lott's.

Vol. ix, No. 7.

1779.—*November 23. Morristown.*—Quartering of troops. Description of ground back of Mr. Kemble's.

Vol. ix, No. 8.

1779.—*November 24. Morristown.*—Report of the woods near Mr. Lott's.

Vol. ix, No. 10.

BARRETT, SAMUEL, & Co :

- 1779.—*January 12. Boston.*—Condoles with him on the loss of so capable, so honest and so assiduous a person as Mr. Andrews. Applies for the agency himself. His well-known fitness for it. Mentions various people who can furnish him with testimonials. Vol. viii, No. 5.

BAYLEY, JACOB :

- 1779.—*November 9.*—Sends by Major Whitcomb what accounts he has collected. Has orders to build a slaughter and storehouse at Charlestown (N. H.) to be used for an enterprise into Canada. His opinion of this plan. Thinks America's independence insecure until there is a union of Canada and the thirteen States. Must have \$12,000 at once.

Vol. iii, No. 3.

BEATTY, CHARLES :

- 1778.—*November 27. Fredericktown.*—Acknowledging favor of roth inst. and promising to aid Col. Bland and Mr. Davenport in all things. Unless his department is enlarged by the addition of Frederick county, he does not choose to act any longer, for reasons heretofore stated. Vol. x, No. 43.

BEATTY, JOHN :

- 1779.—*February 17. Commissary of Prisoners' Office.*—Asking him to transmit certain papers to Col. Greene. All houses in the vicinity of headquarters taken. His office requires constant attendance on the Commander-in-chief. Would suggest that the Rev. Dr. Belmain give up his house, as he can carry on his duties with equal regularity at a greater distance. Would like the General to point out the proper measures for his removal. Vol. iv, No. 5.

- 1779.—*February 24. Commissary of Prisoners' Office.*—The bearer, Lt.-Col. Darke, of the Virginia Line, being a prisoner on parole to the enemy, is returning to his captivity in New York. His horse being lame, begs another one for him as far as Elizabeth Town. Vol. iv, No. 4.

BELDING, SIMEON :

- 1779.—*May 23. Camp, Reading.*—Has applied in vain to Captains Hubbard and Star for tents for Gen. Parson's brigade, which is in good order and fit to march. Vol. v, No. 69.

BELDING, SIMEON (*continued*):

- 1779.—*May 25. Reading.*—Concerning a supply of portmanteaus and tents. Vol. vi, No. 10.

BERRY, SIDNEY:

- 1779.—*November 6.*—Repairing of boats in New Jersey. Desires orders respecting boats and teams. Captain Clinton will report on damages. Vol. ix, No. 12.

BETTS, WILLIAM M.:

- 1779.—*November 3. Fishkill.*—Artificers hired by the day quit work on Monday last. They have presented him with proposals, of which the enclosures are copies. Col. Hay gone to Rhynbeck (Rhinebeck) to inspect the rafts there. Vol. iii, No. 5.

- 1779.—*November 15.*—Acknowledging, in Col. Hay's absence, his favor of equal date. Col. Hay's intention to wait on Gen. Greene early in the morning. Vol. iii, No. 4.

BIDDLE, CLEMENT (Col.):

- 1779.—*January 25. Camp, Middlebrook.*—Acknowledging favors of 20th and 22d insts., with an acceptable supply of money from Col. Pettit. Scarcity of forage on account of great land carriage. Complaints against Col. Bostwick give him great pain. Thinks the purchasers of forage should have an allowance made for their incidental expenses. Arrival of a fleet of sail at York laden with oats and flour. The first fleet, depended on for provisions, is still missing. Vol. ix, No. 13.

- 1779.—*January 27. Rarriton [Raritan].*—Favorable reports from Col. Hay concerning forage and horses. Difficulty of getting in forage. Roads to Trenton and to North River must be repaired. Mr. Furman's and Col. Hooper's inability to provide the required amount of forage. On the strength of a report that the enemy were preparing to cross over from Staten Island to Jersey, got ready for them, but they failed to materialize. Thinks they may attack Elizabeth Town. Would like to have the Brigade Artillery. Vol. viii, No. 7.

- 1779.—*February 11. Philadelphia.*—Excessive amount of forage consumed. Efforts he is making to supply Pulaski's Legion. Prices rising and forage scarce. Vol. iv, No. 7.

BIDDLE, CLEMENT (Col.) (*continued*):

- 1779.—*February 20. Philadelphia.*—Amount of grain forwarded. Sorry to learn from Col. Finnie of Virginia, that their bay is full of the enemy's cruisers, which prevents him from sending any of the forage to the head of the Elk. Has written to Col. Pettit to suggest to the Committee of Congress the advisability of clearing the bay. Rumor from Congress of some foreign intelligence of great importance raised the valuation of money, but only for the moment. Hopes the publication of the good news will add to the money's value. Vol. iv, No. 6.
- 1779.—*February 24. Philadelphia.*—Announcing the birth of a son. Large consumption of grain by the horses. Will set out for camp on Sunday. Vol. x, No. 5.
- 1779.—*May 22. Rarriton [Raritan].*—Enclosing one set of the returns of his department and promising others. Vol. i, No. 76.
- 1779.—*May 27. Middlebrook.*—Informing him what States can be depended on for supplies of forage. Advising that the inhabitants of certain districts be left at home to cut the hay and grain. Asking that the question of pasturing the horses be presented to His Excellency. Vol. v, No. 83.
- 1779.—*May 28. Camp.*—Report of the state of the scythes. Has sent a person to collect all the bags in certain districts, as the waste of grain without them is very great. Vol. v, No. 89.
- 1779.—*May 28. Rarriton [Raritan].*—Mr. Furman having left, returns the letter to Gen. Greene. Insufficient pasturage for horses. Vol. v, No. 91.
- 1779.—*May 31. Rarriton [Raritan].*—Arrival of fifty horses in good condition. Amount of grain forwarded. Vol. vi, No. 20.
- 1779.—*October 29. Morristown.*—Enemy has not destroyed any hay at Quibble Town and only eighty or ninety tons at Raritan, after which they returned to Amboy, leaving their commander, Col. Simcoe, and one or two others, prisoners. Report of their burning Brunswick, false. Has given orders to provide Gen. Sullivan's army at Morristown. Vol. iii, No. 8.
- 1779.—*October 30. Raritan.*—Account of the landing of the enemy, 900 strong, at Amboy; the property destroyed and

BIDDLE, CLEMENT (Col.) (*continued*):

plundered, and the number of men killed. Question of forage and stores; fears for them should the enemy land again. Scarcity of flour on the North river. Vol. iii, No. 7.

1779.—*November 3. Murderer's Creek.*—Enclosing returns of the damage done by the enemy in Jersey. Amount of hay in the different towns; where he ordered it to be sent; did not want to leave it exposed to the enemy. Glad that Gen. Maxwell's brigade is marching to take post at Westfield. Difficulty in procuring forage for Gen. Sullivan's troops. Vol. iii, No. 13.

1779.—*November 3. Murderer's Creek.*—Report in detail of the ground under the mountain back of Quibbletown and Scotch Plains. Question of wood, water and the hauling of forage. Vol. iii, No. 12.

1779.—*November 6. New Windsor.*—Concerning the most northerly position the army wintering in New Jersey could take, in order to be furnished with necessary supplies. Prospects for winter quarters. Amount of forage in the different States. Plans suggested, in case the arrival of Count d'Estaing should decide a movement toward New York. Vol. ix, No. 14.

1779.—*November 9. New Windsor.*—Acknowledging favor of 8th inst. Amount of feed for horses; but this, as well as all the army supplies, depends on their being furnished with money speedily. Vol. ix, No. 16.

1779.—*November 11. New Windsor.*—Enclosing (Col.) Bostwick's letter with an account of the difficulties of getting the forage down the river. Hopes they may get a sufficiency for their horses. Would like to know the different positions and routes they are to take, and when they are likely to move. Vol. iii, No. 11.

1779.—*November 12. New Windsor.*—Wishes to know by what route the army will move to Jersey, that he may make the best provisions for the horses. Disposition of the cavalry. Inhabitants persuaded with utmost difficulty to keep the horses in the country for some days longer. Uneasy at not being able to get forage down the river. Vol. ix, No. 17.

1779.—*November 15. New Windsor.*—Begging him to order Mr. Van Court to call on him for money, in order to take certain horses off and make way for others. Vol. iii, No. 9.

BIDDLE, CLEMENT (Col.) (*continued*):

1779.—*November 20. Stoney Hill.*—Report of the ground from Scotch Plains to Quibbletown Gap. Thinks the military position a good one. Would be happy to view the ground with Gen. Greene. Vol. ix, No. 18.

1779.—*November 27. Bullion's Tavern.*—Mr. Lodge's and Maj. Burnet's opinions of the ground at Stoney Hill. Will proceed himself to Pluckemin, on the north side of Dead river, and see if there is any ground suitable for encamping. Expects to proceed home the next evening for fresh clothes and horses.

Vol. ix, No. 19.

No date.—*Near Pluckemin, Sunday morning.*—Found several positions between Bullion's and Pluckemin, for single brigades. Desires to know where Gen. Greene (?) will meet him.

Vol. ix, No. 20.

BINNEY, B. (Dr.):

1779.—*May 18. Somerset Court-house.*—The two churches and court-house, of which they have legal possession, being crowded to a degree dangerous to the health of the wounded, has applied to the magistrates for the neighboring barns to accommodate the convalescents. In answer, they threaten to imprison the first who shall "prostitute a barn to the use of sick soldiers." What's to be done? Vol. v, No. 39.

BLODGET, WILLIAM :

1779.—*May 24. Philadelphia.*—Mrs. Greene's phaeton to be repaired by Saturday. Finds upon inquiry that the most advantageous opening for himself is a captain of marines on board the *Dean Friday*. Expects to drink tea with the Governor that afternoon and will present Gen. Greene's compliments. The city in commotion owing to a publication threatening vengeance on monopolizing speculators unless prices are reduced to what they were the Christmas before. Various arrests made. Inhabitants to hold a probably stormy meeting at the State-house. Vol. v, No. 64.

BOND, THOMAS, JR. (Dr.):

1779.—*May 10.*—Informing him that his boy has gone through the small-pox but is now fit for service. The pleasure it has given him to have this opportunity to testify to the obligation

BOND, THOMAS, JR. (Dr.) (*continued*):

he was under to Gen. and Mrs. Greene. Desires some orders concerning the boy. Vol. vii, No. 57.

BOWEN, EPHRAIM (Col.):

1779.—*January 2. Providence.*—Acknowledging favor of 12th inst., with \$140,000. The letter countermanding the order to pay Jacob Greene, Esq., \$20,000 was carried to Boston by mistake, and nearly the whole amount was paid to him. Amount of disbursements. Report of the provision made for the horses. Asks for cash. Vol. viii, No. 8.

1779.—*February 8. Providence.*—Acknowledging favors of the 26th and 27th ult. Matter of returns. Has had no success in procuring vessels to bring rice. Exorbitant terms on which a few could be had. Accident to horses. Engaged George Benson to take the place of Mr. Olney, who is leaving. Pays him \$100 a month; hopes the General will consent to this. Mr. Olney carries his account to the 1st inst.

Vol. iv, No. 10.

1779.—*February 15. Providence.*—Enclosing returns of stores on hand, with list of persons employed and their pay. Will dismiss his express as he hears that those on the communication to headquarters are called in. About fifty sail of transports observed coming down the Sound; cannot learn if they have troops on board. Applied to Mr. Otis for duck for knapsacks. Vol. iv, No. 9.

1779.—*May 6. Providence.*—Enclosing accounts and returns for past month. Unless speedy supply of money arrives, will not be able to procure a single ton of hay. If Glover's brigade has orders to march, they will rob the department of necessary horses. Vol. vii, No. 38.

1779.—*May 22. Providence.*—Want of cash. Directed by Gen. Gates to apply to him (Gen. Greene). Thinks the devil has possessed everybody who has anything to supply the army with. Carters refuse to move unless paid at once. The day before a party of Tories landed at Quidnisset (Quidnick) and took eleven of Col. Greene's blacks; they left a small vessel which grounded with five men. Vol. v, No. 57.

BOWEN, EPHRAIM (Col.) (*continued*):

- 1779.—*May 26. Providence.*—Has no doubt that Gen. Greene has used his influence with His Excellency in order to help them in their difficult situation. Tory villains landed at Quidnick and burnt Thomas Allen's house, taking cattle and prisoners. Enemy upwards of 5500 strong. Vol. v, No. 72.
- 1779.—*May 30. Providence.*—Concerning resolve of Congress, depriving those deputies who transact business on commissions, from receiving pay and rations. Gen. Gates displeased at having a letter for him enclosed in Col. Bowen's packet. Vol. v, No. 101.
- 1779.—*October 3. Providence.*—By his brother, Oliver Bowen, has transmitted accounts to September 3, and returns of stores and persons employed. Is doing everything to complete the barracks, but one article needed is *cash*, which, if Gen. Greene cannot give him, begs him to direct Mr. Pettit to give to his brother. Rations and pay of artificers. Enclosing papers containing the State bill and the famous Act of the Assembly; committee engaged in looking into it. Vol. iii, No. 21.
- 1779.—*October 10. Providence.*—Acknowledging favor of the 3d inst. Immediately ordered wagons to be put in best order possible. Cannot find in town a pair of blankets of any description; will send to Boston for a pair. Arranged posts for expresses. Would like an answer to his letter on artificers' rations. Report of a large fleet, supposed to be French, sighted to the west of Block Island. Vol. iii, No. 19.
- 1779.—*October 26. Newport.*—Informing him of the evacuation of the island by the British army on the previous Monday night. Gen. Gates landed on Tuesday morning and marched into the town with great regularity and good order. English left hay, straw, wood and coal behind—no other stores. Promises him a pair of English blankets. Vol. iii, No. 15.
- 1779.—*November 6. Newport.*—Acknowledging favor of 30th ult. Has laid hold of every piece of duck in the town. Desires his directions as to the destination of the hay. Continental troops are leaving for Hartford, by way of Greenwich. Hopes supply of cash will arrive soon. Vol. ix, No. 21.
- 1779.—*November 10. Providence.*—The bearer, Mr. Mitchell,

BOWEN, EPHRAIM (Col.) (*continued*):

leaves the brigade against the wishes of all the officers, as he wanted to go to headquarters to get his family from Long Island. Will send the pair of breeches and waistcoat as soon as they are finished. Vol. iii, No. 20.

1779.—*November 11. Providence.*—Enclosing returns of stores and persons employed for November. Late in getting it off as the General required his constant attendance on him; left him at Voluntown in a very good humor. Troops will be at Hartford by Monday. Has put the horses belonging to artillery out to pasture until they are wanted. Vol. iii, No. 16.

1779.—*November 25. Providence.*—Enclosing a journal of the siege of Savannah found on board a British sloop which put into the harbor of Newport, not knowing that their friends had evacuated that town. Wants order for clothing. Will forward accounts in December. Vol. ix, No. 22.

1779.—*December 24. Providence.*—Acknowledging favors of 10th and 13th insts., and enclosing return of all his employees in the department. Matter of clothing for himself and other officers. Question of supplying the sloop *Argo* and the *Pigot* galley with duck. Vol. viii, No. 9.

BOWEN, OLIVER:

1779.—*October 10. Gen. Howe's Headquarters, near Poim Bridge.*—Announcing his arrival with a packet containing the Quartermaster's accounts intrusted to him by Col. Bowen. Will wait on Gen. Greene the next day. Vol. iii, No. 18.

BRODHEAD, DANIEL (Col.):

1779.—*May 26. Pittsburgh.*—Acknowledging favor of 13th inst. Glad Gen. McIntosh is to go to the southward, but thinks his temper will be as disagreeable to the inhabitants there as it was in this district. Gen. McIntosh's tactics in the last campaign. His own command in fair condition. Dispute between Gen. McIntosh and Col. Steel. Wishes Gen. Sullivan great success against the "black caitiffs of the North." Case of a young Delaware Indian, son of the late Capt. White Eyes, a noted warrior, who is desirous of joining the expedition. Delay in receiving salt provisions. High wages of artificers; poor soldiers kept to the old rate without a murmur.

Vol. v, No. 77.

BROOKS, D. :

- 1779.—*May 24.*—Directed by His Excellency to apply to Gen. Greene for wagons to convey certain stores. Vol. vi, No. 6.

BROWN, BENJAMIN :

- 1779.—*October 18.*—Finds from the books that Mr. Joseph Webb is charged with £1500. Account brought from Ledger A, which book Mr. Story has locked up. Vol. iii, No. 29.

BROWN, WM. (Dr.) :

- 1779.—*October 2.* *General Hospital, Otterhill.* — Asking for a horse for the bearer, Mr. Scott, who is Commissary for the hospital and is obliged to ride about the neighborhood a good deal. Vol. iii, No. 30.

BUCHANAN, JOHN (Capt.) :

- 1779.—*October 1.* *West Point.*—Desiring authority to impress vessels for the transportation of the Carolina brigade. Vol. iii, No. 28.

BULL, SAMUEL :

- 1779.—*November 15.* *Middleton.* — Dimensions and number of boats at Chatham shipyard. Vol. iv, No. 23.

CALDWELL, JAMES :

- 1779.—*October 27.* *Springfield.*—Informing him of the advent of the enemy the day before and the damage to property. Asks him to use his influence with His Excellency to have the whole or part of the Jersey brigade stationed somewhere near Westfield. The magazines of hay are of vast importance and the State troops on duty are insufficient even to alarm the country—*i. e.* : the enemy reached Bound Brook a little after sunrise and the alarm was given at Elizabethtown around 11 o'clock. 4000 militia ordered by Legislature to be in readiness but only to turn out at the advent of the French fleet. Stores in imminent danger.

(Note.—The foregoing letter is from Rev. Dr. Caldwell, whose wife was killed by the British on June 7, 1780, and himself shot in November, 1781. They left nine children.)

Vol. viii, No. 12.

CHASE, THOMAS :

- 1779.—*February 5. Boston.*—Acknowledging favor of 14th ult., with certain moneys. Hopes ere this that Gen. Greene and Major Lee have received their wines. Gives high prices of various articles. Sent on returns a few days earlier.

Vol. viii, No. 13.

- 1779.—*February 9. Boston.*—Acknowledging favor of January 29th. Navy Board has tent cloth for about 1000 tents, which he will immediately apply for and have made up.

Vol. iv, No. 13.

- 1779.—*May 2. Boston.*—Enclosing account and returns. Tents gone to Springfield. Difficulty of procuring teams—\$5.00 a mile demanded for carting. Has sent on some of the lead ordered by Board of War.

Vol. vii, No. 19.

- 1779.—*May 31. Boston.*—Enclosing accounts and returns for the month of May. Detailing the reasons for employing certain artificers, boatmen, etc. Mr. Hewes' just claim to a British schooner, captured when the enemy evacuated Boston. Accounts of Mr. Pynchon. High price of teams; depreciation of money accounts for it.

Vol. v, No. 102.

- 1779.—*October 4. Boston.*—Acknowledging favor of September 17th. Glad the Minister of France was pleased with the reception he met with in Boston. Trusts his reception in Philadelphia was equally agreeable. Hopes Gen. Greene will send him by Brown a supply of money. Has been obliged to borrow, or the public stores must have ceased. Difficulty of procuring teams and sending on public property. Sending his account and returns, also several articles.

Vol. iii, No. 27.

- 1779.—*October 12. Boston.*—Acknowledging his favor of the 29th ult. Surprised at complaints made against him by the Commissary Department. Would like to know who made the complaint; thinks there has been as much expedition shown in his department as in any on the Continent. Teamsters are paid any price to transport private property from Boston, and naturally they prefer it to carting public stores. Brewer has returned without money and therefore will not be able to send on the stores. Salt stopped on the road owing to not having a pass.

Vol. iii, No. 25.

CHASE, THOMAS (*continued*):

- 1779.—*October 21. Boston.*—The bearer, Mr. Brewer, has the charge of 100 bbls. of powder. No more stores can be procured without an immediate supply of money, as teamsters insist upon being paid as soon as the work is done. Generally by the time they received their money, it had depreciated one-half. Difficulty of procuring the teams even by paying the money down. Vol. iii, No. 24,

- 1779.—*December 1. Boston.*—Enclosing accounts and returns for November. Never was more distressed for money. Can neither send on stores nor procure anything. The money depreciating so fast nobody will trust the Continent one day. Self-interest the only principle in the political world.

Vol. viii, No. 14.

CLAIBORNE, RICHARD:

- 1779.—*May 6.*—Result of a consultation with Col. Cox on the subject of bateau-men. Does not know where the stores are coming from; will be deposited at Sunbury as fast as they arrive. Vol. vii, No. 40.

- 1779.—*May 6. Eastertown.*—Account of stores received from Col. Mitchell and their indifferent quality. Col. Morgan's stores and those of Col. Patton in good order. Wants the pack-saddles, procured by Col. Hooper. Question of engaging boatmen and their wages. Size and convenience of certain boats. Vol. vii, No. 39.

- 1779.—*May 17. Estherton.*—Acknowledging letter of 10th inst. Saw that Col. Patton received the same orders as Col. Morgan. Has consulted Col. Cox on all measures relating to the Quartermaster Department. Lack of steel in the axes received will render most of them useless. Doubts Col. Mitchell's diligence, and states his reasons for this opinion. Mentions men appointed by Col. Cox to engage boatmen. Favorable outlook in the matter of boats and boatmen. Enclosing Mr. Redick's return of provisions. Vol. v, No. 19.

- 1779.—*May 18. Estherton.*—Acknowledging letter of 14th inst. Number of boats employed in carrying provisions to Wyoming. Employing more boats and recruiting boatmen. Supplies from Philadelphia coming in pretty fast. Sparing no exertion to accomplish everything according to Gen. Greene's wishes. Vol. y, No. 17.

CLAIBORNE, RICHARD (*continued*) :

- 1779.—*May 18. Eastertown.*—In great hopes of having everything in the boat way completed in a short time. Not prejudiced against Col. Mitchell as a private gentleman, but really astonished at the condition of the stores he sends. Describes the rottenness of the leather, harness, linen, etc.

Vol. v, No. 18.

- 1779.—*May 24. Estherton.*—Mr. Morrison's company of boatmen complete and will be down from Wyoming with the large boats. Col. Mitchell's stores coming in very slowly. Boatmen wish same rations as boat-builders, also a blanket apiece, they being exposed to the weather day and night.

Vol. vi, No. 5.

- 1779.—*November 22. West Point.*—Maryland division waiting for their clothing. Mr. Belding wishes to know if his assistance is necessary in quartering the light dragoons at Wallingford.

Vol. ix, No. 28.

CLARK, THOMAS (Col.) :

- 1779.—*February 27. Paramus.*—In future will send weekly returns. Wants tents for his soldiers.

Vol. ix, No. 29.

COLLINS, STEPHEN :

- 1779.—*February 10.*—A list of sundry goods, belonging to Mrs. Whitbread, stopped by Capt. Stokes, commanding officer at B. Town.

Vol. iv, No. 15. (Enclosed in letter, Vol. iv, No. 14.)

- 1779.—*February 16. Philadelphia.*—Setting forth the case of Sarah Whitbread who, having obtained a pass to New York, was on her way back with sundry goods, which were taken from her by an American officer who gave her a receipt for them. Most of the articles intended as presents for Mrs. Collins. Asks for some redress.

Vol. iv, No. 14.

COOPER, CONSTANT, AND OTHER INHABITANTS OF MENDUM :

- 1780.—*February 27.*—Thanking Gen. Greene for his care in securing the property of the public.

Vol. i, No. 94.

COTTON, JOHN :

- 1779.—*May 4. Croton River.*—Desiring to know the duties and privileges attached to the office of Brigade Quartermaster, in order to settle one or two disputed points. Vol. vii, No. 33.

COTTON, JOHN (*continued*):

- 1779.—*October 11. Middletown.*—Acknowledging his favor of 26th ult. together with Gen. Washington's to Moses Bush, requesting him to procure a number of scows. Has put his carpenters to work on them and is pushing the work through.

Vol. viii, No. 20.

COX, JOHN (Col.):

- 1779.—*February 16. Bloomsbury.*—Will inquire into the prices of pack-saddles, and if they can be had at £3 will order 500 of them. Dispatched an express to Col. Patterson and will accompany him to camp on his arrival. Mrs. Cox and family send compliments to Mrs. Greene.

Vol. iv, No. 16.

- 1779.—*February 16. Bloomsbury.*—Just honored with his favor of that morning and sends the horse by bearer. Congress has received some very interesting intelligence, which is affected to be kept a profound secret. Many conjectures as to its nature. Has had a considerable effect in reducing prices. Pennsylvania's tax bill under consideration. Report of five or six of the enemy's armed vessels being carried into Chesapeake bay by two Continental frigates. Intelligence received that the schooner *Hunter* has brought in a prize.

Vol. iv, No. 17.

- 1779.—*February 18. Bloomsbury.*—Expects Col. Patterson by Saturday or Sunday at farthest, when he will be able to accompany him.

Vol. iv, No. 18.

- 1779.—*May 8. Mount Holly.*—Acknowledging favor of 6th inst. Flatters himself that the articles ordered to be deposited at Estherton are there, and those for Fort Pitt are on their way up. Unable to say when wagons, horses, etc., requisite to enable His Excellency to make a general movement of the army, can be in readiness. Expects to have a handsome supply of teams, etc., at camp by the middle of May. Every possible exertion being made by himself and all his deputies. Sudden death of his brother, Mr. William Cox.

Vol. vii, No. 49.

- 1779.—*May 10. Bloomsbury.*—Acknowledging favor of 6th inst. Has given orders to every deputy in his department to forward wagons, horses or stores of any kind to camp. Detailing the

Cox, JOHN (Col.) (*continued*):

different articles needed and where he is procuring them. Difficulty in obtaining watermen on the Susquehanna. Col. Davis' report of what he is able to send. Col. Pettit distressed by demands on him, which multiply hourly.

Vol. vii, No. 65.

- 1779.—*May 11. Bloomsbury.*—Acknowledging favor of 10th inst. Will write to agents countermanding orders, but fears it will not be in time. Every possible exertion has been made to expedite the Indian expedition. Number of tents, etc., sent by Col. Mitchell. Will forward them to camp unless otherwise directed.

Vol. vii, No. 69.

No date.—*May 11. Bloomsbury.*—Acknowledging favor of 10th inst. With enclosures. Reasons for the major's objections to the pack-saddles. Thinks himself that they are superior to those made by Col. Hooper. Quality of the axes ordered. Stores from Philadelphia as good as those procured elsewhere. Best write for pack-saddles. Promises every exertion in raising bateau-men.

Vol. vii, No. 70.

- 1779.—*May 18. Bloomsbury.*—Enclosing invoice of stores going and gone. Amount of supplies furnished by Col. Mitchell. Col. Davis writes of the scarcity of forage. Wages of boatmen engaged by Col. Morgan. Boats cannot proceed up the river without a sufficient guard to defend them and there is not a soldier there for that purpose. Asks advice about horses sent to Mr. Furman who has no forage for them. Road to be opened across the great swamp to Wyoming. Fears that unless spirited measures are taken the populace are likely to think the Staff department composed of rascals. Maj. Blodget weather-bound at Bloomsbury, diverting the ladies on the spinet.

Vol. v, No. 21.

- 1779.—*May 19. Bloomsbury.*—Will procure and send forward stores for Col. Hay. Obligated to give \$6.00 a day for bateau-men. Hopes to be with him in a day or two, as he is now quite strong.

Vol. v, No. 31.

- 1779.—*May 21. Bloomsbury.*—Acknowledging favor of 20th inst. Ordered Mr. Mitchell to forward 200 portmanteaus to Easton with all possible dispatch. Canteens had better be ordered from Middlebrook. Other articles sent.

Vol. v, No. 48.

COX, JOHN (Col.) (*continued*):

1779.—*May 31. Bloomsbury.*—Has hurried on the wagons. Will set out for Philadelphia early the next morning, from which town hopes to send portmanteaus and tents in plenty.

Vol. vi, No. 24.

1779.—*October 2. Philadelphia.*—Acknowledging letter of 26th ult. Has prevailed on Major Eyre to join the army whenever Gen. Greene thinks his presence necessary. Number and destination of the flat-bottomed boats on hand. Wishes to know if more shall be built. Desires the earliest intelligence of the arrival of the French fleet, that he may join Gen. Greene before he enters the city. Great rise in the price of provisions, foreign and domestic.

Vol. iii, No. 27.

1779.—*October 6. Philadelphia.*—Acknowledging favor of 27th ult. List of boats sent up to Trenton. More, if wanted, can be built at Easton. Department in great distress for want of cash. Gen. Greene's winter boats in hand. Gen. Knox's saddle will be sent as soon as it can be made. Vol. iii, No. 23.

1779.—*October 10. Philadelphia.*—Informing him that Major Eyre, at the head of about 100 well-disposed carpenters, intends setting out for headquarters Tuesday morning. Puzzled to know how to raise enough cash to give them each a monthly advance. Terrible demand for cash. Difficulty in procuring canvas for tents; enumerates the number sent on and promises more. Stoves being made as fast as possible. Fast sailing boats, ordered by His Excellency, waiting for the dispatches to Count d'Estaing.

Vol. iii, No. 22a.

1779.—*October 20. Bloomsbury.*—Acknowledging favor of the 13th inst. Disposition he has made of the flat-bottomed boats. Best route for the boats to take on the Susquehanna. Number of boats nearly sufficient. Badly off for tents and forage; no canvas for the first and no money for the second. Constant demands for cash and not a shilling to be got from the Treasury. Thinks it high time that they should come to a full and complete explanation with Congress. Tremendous rise in the price of boards, forage, etc. Count d'Estaing's success; no particulars as yet. Wagon hire.

Vol. iii, No. 22.

COX, JOHN (Col.) (*continued*):

- 1779.—*October 23. Bloomsbury.*—Acknowledging favor of 20th inst., and promising to do his best as regards tents. Black outlook as regards cash. Arguments of no effect with the Treasury. Arrival of thirteen boats; will direct Col. Berry to detain them at the White House until he receives orders what to do with them. Lack of forage, owing to Major Gordon not being supplied with money. Cannot make provision for the next campaign without cash. Vol. iii, No. 34.
- 1779.—*November 2. Bloomsbury.*—Acknowledging favor of 26th ult. from Gen. Greene (?). Number and destination of boats. Reason for ship-carpenters' high wages; advises their dismissal. Good prospect of procuring tents. Has ordered to Morristown every article needed for hutting the troops. Col. Biddle over head and ears in debt. Vol. ix, No. 31.
- 1779.—*November 7. Bloomsbury.*—Acknowledging favor of 30th ult. Obligated for the agreeable intelligence of the evacuation of Newport. Measures taken for the safety of boards and forage. Prospect for tents has brightened. Gen. Sullivan's want of economy. Present difficulties in the various departments, owing to lack of money. Begg Gen. Greene to take a peremptory and spirited attitude towards Congress. Disposition of boats. Col. Pettit hastening the settlement of accounts; he has taken a house in Philadelphia; says his prospects for cash were never worse. Scattered situation of boats built in Susquehanna. No prospect of getting forage. Vol. ix, No. 32.
- 1779.—*November 17. Bloomsbury.*—Sand bags in readiness. Congratulates him on the arrival of Mrs. Greene. Unless effectual measures are immediately taken to open the eyes of the Treasury and induce them to furnish a very *considerable* sum to the Quartermaster department, supplies expected from his quarter must assuredly cease. Mr. Pettit only received a small fraction of the cash needed. Suggests the immediate surrender of all appointments and offices, to arouse those at the helm to a sense of their duty. Desires information respecting the boats, also the troops' winter quarters. Mr. Pettit's opinion, and his also, that money will soon be more valuable than any article at the present prices. Mr. Pettit's plan, therefore, to turn all their concerns in shipping into cash. Vol. ix, No. 33.

Cox, JOHN (Col.) (*continued*):

- 1779.—*November 23. Bloomsbury.*—Acknowledging favor of 20th inst. Mr. Furman's report on the number of boards deposited at various towns. All efforts to get a supply of cash from the Treasury, fruitless. Money depreciated twenty-five per cent., since their repulse at Savannah. Has given the necessary directions concerning the craft in the Susquehanna.

Vol. ix, No. 34.

DAVIS, JOHN:

- 1779.—*May 30. Carlisle.*—Informing him of the number of horses purchased and the time at which he may expect them. Must pay drivers same wages as boatmen, in order to get them. Account of stores forwarded.

Vol. v, No. 100.

DUPORTAIL, LOUIS (Maj.-Gen.):

- 1779.—*May 27. Camp.*—Requesting orders for wagons, tents, blankets, etc.

Vol. v, No. 78.

ERSKINE, JOHN:

- 1779.—*February 11. Raritan.*—Writes on behalf of Mr. Weiss, who complains that a private road used by the soldiers leads past the two houses where the stores are deposited, and that two sentries are not sufficient to guard them. Wishes that road stopped, as the public road is equally convenient for the soldiers.

Vol. iv, No. 19.

- 1779.—*October 5. Murderer's Creek.*—Has just received his letter concerning the clothing and letters that McDonald Campbell brought from Mrs. Greene. Never saw either clothes or dispatches, though he remembers consenting to Campbell's request that his despatches might go by some of the expresses who were to leave the next morning for West Point.

Vol. iii, No. 33.

ERSKINE, ROBERT:

- 1779.—*November 18. New Windsor.*—In consequence of a note from Col. Morris, has dispatched Mr. Lodge, one of the surveyors, to Morristown; will endeavor to follow himself as soon as possible.

Vol. ix, No. 36.

- 1779.—*December 18. Morristown.*—Returns for clothing of Surveying department.

Vol. xii, No. 11.

EYRE, BENJAMIN :

1779.—*October 1.*—Acknowledging letter of 3d inst. Has been busy ever since collecting one hundred men, a company of which leave for Easton before night. All boats sent on to Trenton. Obligated to His Excellency and to him for their good opinion. Vol. iii, No. 35.

1779.—*July 1. Philadelphia.*—Transmits returns of boats, men, and the money spent in his department. Orders from Col. Cox to reënlist about fifteen ship-carpenters. Fears they will not engage without a raise of pay. Condition of boats. Wagon-master should be given a special charge, so that he may not tear the boats to pieces when the road turns and winds.

Vol. viii, No. 22.

FAESH, JOHN JACOB :

1779.—*January 9. Mount Hope.*—By Col. Abeel's team sends him two saddles of venison. Vol. viii, No. 22.

1779.—*February 11. Mount Hope.*—By Col. Abeel's team sends two saddles of venison, which he hopes Gen. Greene will accept. Intends waiting on him soon. Vol. iv, No. 20.

FERRIS, OWEN :

1779.—*May 11. South Wales.*—Has sent fifty horses by order of Col. Mitchell, and will send fifty more. Vol. vii, No. 68.

1779.—*May 15. North Wales.*—Sends him the fifty horses. Wishes to know whether he shall purchase more. Vol. vii, No. 98.

FINNIE, WILLIAM :

1779.—*February 11. Williamsburg.*—Acknowledging favor of 15th ult. Detailed reasons why the barracks, near Charlottesville, are impossible as a station for the Convention troops. Defends himself against certain complaints made against him by Col. Aylett. His presence necessary at Williamsburg, and all his exertions needed to collect forage. Quotations from Col. Biddle's letters showing scarcity of forage. Capes and bays infested by the enemy's cruisers and privateers. Armed vessels ordered down to give protection to the provision vessels. Appointment of Capt. Rice to superintend the business of the station. Promising certain returns. Vol. iv, No. 21.

FLINT, ROYAL:

- 1779.—*November 15. New Windsor.*—Amount of bread and flour on hand. Would have waited on Gen. Greene at the Point, but has been unwell for several days. Vol. ix, No. 37.
- 1779.—*November 15. New Windsor.*—The bearer, Major Boyd, has 1000 or 1200 bushels of wheat which he wishes to exchange for German steel. Asks him to consider this proposal and inform Major Boyd what is expedient to be done in the affair. Vol. ix, No. 38.

FORSYTH, JOHN (for ROB'T PATTON):

- 1779.—*May 17.*—Will send all the wagons and horses to camp, agreeable to Col. Cox's order. Morally impossible to get forage; poor condition of the horses already bought. Mr. Patton in Philadelphia on public business. Receipt for stores wanted. Vol. v, No. 7.

FORSYTH, ROBERT (Major):

- 1779.—*January 14. Camp, Middlebrook.*—Enclosing letters from Col. Hay. Horses all gone except those with Maryland troops. Gave Major Hall Mr. Duer's draft on Abraham P. Lott. Dissatisfaction among Brigade Quartermasters; their extra pay too small, and their work doubled. Vol. viii, No. 38.
- 1779.—*January 27. Camp, Middlebrook.*—Sorry for the loss of Mr. Andrews. Report that the enemy intend taking an airing in Jersey once more. Ready to execute any order of his Lordship's. Had a most agreeable hop the previous evening; mentions those present; nothing lacking but the presence of Gen. Greene and his lady; kept it up till 4 in the morning. Vol. viii, No. 25.
- 1779.—*February 3. Camp, Middlebrook.*—Acknowledging letter of 31st ult. The arrival of "faithful old John, with his bays in very good order." Sympathizes with Mrs. Greene over the bad roads. Vol. ix, No. 39.

- 1779.—*May 19. Williamsburg.*—Enemy, after burning Suffolk, retired toward Portsmouth, destroying everything before them. Helpless situation of Virginia; very few arms and accoutrements. Militia ordered to various cities; all hands to

FORSYTH, ROBERT (Major) (*continued*):

be full of fight. Enemy say publicly that their next move will be on Hampton; will push on then as far as Baltimore, destroying all before them. Information gathered from one of "our" men who escaped from a British schooner. Pressed on all sides for his services; thinks he will join Gen. Nelson for the present; has expectations of an appointment under Col. Wadsworth. Will render Col. Firmin all assistance possible.

Vol. v, No. 33.

FURMAN, MOORE:

1779.—*May 7. Trenton.*—Sorry to have missed his visit. Want of money prevents execution of orders. Difficulty of procuring wagons. Does not know how to get supply of forage to North river. Resignation of Mr. Caldwell; unless their salaries are raised, more will follow suit. The attitude of the New Jersey Assembly, relative to further laws for collecting forage.

Vol. vii, No. 41.

1779.—*May 8. Trenton.*—Sends the enclosed by Joseph Davison, express rider, who returns to Mr. Furman's house. Expects on the morrow to load and start seventy wagons, to carry military stores to camp.

Vol. vii, No. 47.

1779.—*May 10. Pittstown.*—Acknowledging favor of 9th inst. Number of horses forwarded. Mistakes that happen in forwarding commissary stores. Promising salt beef and bread.

Vol. vii, No. 61.

1779.—*May 11. Pittstown.*—In accordance with his demand has dispatched by bearer the eighteen horses; is sending seventeen more.

Vol. vii, No. 61a.

1779.—*May 30. Pittstown.*—Number of horses he is sending on; will proceed to make up the ten brigades ordered to be raised in this State.

Vol. v, No. 99.

1779.—*October 1. Pittstown.*—Acknowledging his two favors. Has seen about boards, and has sent orders to erect stables at Burlington to receive the horses. Will look after the boats. Quantity of long forage in the quarter where the troops will pitch their tents. Thinks it probable that New York may be in American hands before the winter, the Count being on the wing for their assistance.

Vol. iii, No. 36.

FURMAN, MOORE (*continued*):

- 1779.—*October 9. Pittstown.*—Will send on forty horses, if it is possible to get them shod that day. Horses recruiting at Col. Biddle's farm can be used for the boat carriages, if wanted. Vol. iii, No. 41.
- 1779.—*October 9. Pittstown.*—Will send on forty-three horses instead of forty, and expects they will be joined in Somerset county by fifteen or twenty more. If he had not been forbid to purchase, could easily have made up the number called for. Vol. iii, No. 42.
- 1779.—*October 18.*—Just received letter from Mr. Gordon, announcing that his short forage is out and that private purchasers are out-bidding him, giving half as much again for grain. Same intelligence coming from almost every purchaser in the State. Vol. iii, No. 40.
- 1779.—*October 19. Morristown.*—Acknowledging favor of 17th inst., and promising to make up the number of horses. As for the men, thinks a line from His Excellency, Gen. Washington, to the Governor for one militia company will prevent delay. In his opinion, nothing of consequence has yet been proved against Mr. Lewis, and the public suffers merely to gratify private spleen. Longs to hear of the arrival of the French fleet. Advices from Georgia put fresh spirits in the people. Exorbitant price of forage; the more money issued the more it depreciates. Intends applying to the Assembly for some relief. They might follow a law lately passed in New York respecting forage. Salary in his department so low that he has great difficulty in keeping the men in the service. Vol. iii, No. 43.
- [PROBABLY TO GEN. GREENE:]
- 1779.—*October 27. Trenton.*—Concerning the expedition from Staten Island; will get a particular account of the damage done as soon as possible. Assembly has met, but the choosing a Governor and other ceremonies will occupy the whole week. After that, will speak to them about collecting the grain in the State; unless they aid him can do nothing. Enemy's object probably the forage; what will be done to save it? Vol. viii, No. 29.

FURMAN, MOORE (*continued*):

- 1779.—*October 31. Pittstown.*—Concerning horses for Lord Stirling's division. Vol. viii, No. 28.
- 1779.—*November 14. Pittstown.*—Copies of orders sent at different times, respecting boats collected by James Burnside. Vol. ix, No. 42.
- 1779.—*November 8. Pittstown.*—Acknowledging favor of 3d inst. Precautions being taken to move certain articles out of the enemy's range. Is able with difficulty to persuade his assistants and foragers to stay with him until the end of the campaign, on account of the low wages. Lack of money. Disposition of horses. Vol. ix, No. 40.
- 1779.—*November 15. Pittstown.*—Acknowledging favor of the 11th inst. from Gen. Greene (?). The double disappointment of the failure in Georgia and the Count's return to the West Indies, will cause the army to move soon. Disposition of boats. Too many horses and too little forage. Concerning the addition of a county to his district when Col. Hooper resigns. Is going to Trenton and Burlington the following day. High price of forage. Vol. ix, No. 41.
- 1779.—*November 22. Trenton.*—Number of boards at Rariton and others being hurried on. Has sent forward horses and flour. The Assembly has promised him their assistance in procuring forage. Vol. ix, No. 43.
- 1779.—*December 1. Pittstown.*—Will write immediately to engage ox-teams and horse-teams. Desires information about where the huts are to be erected. Will make every exertion to raise forage. Vol. viii, No. 27.
- 1779.—*December 2. Pittstown.*—Advised by his favor of the 1st inst. of the position of the army, and will do all in his power to hurry everything to Mr. Kemple's house. Will give immediate notice to persons in forage department to forward everything to that spot. Feels for the army in such cold and storm. Vol. viii, No. 26.
- 1780.—*February 24. Trenton.*—Has received a summons (a copy of which is given) to appear before the Council. Major Gordon quits the department on the 1st of March; also his best clerk. What's to be done? River now impassable; until it opens, intends dismissing teams. Not twenty barrels of provisions to send on. Vol. iv, No. 44.

GÉRARD, CHEVALIER (Minister of France):

- 1778 (?).—*January 2. Philadelphia.*—Praying him to give orders at Fishkill to forward some linen cloth at that place destined for him. Vol. i, No. 100.

GIBSON, GEORGE:

- 1778.—*January 31.*—Giving details of the route by which the Six Nations may pass undiscovered to the Cherokee, Chickasaw, Creek or Choctaw Nations. Vol. viii, No. 32.

GOOCH, JOHN:

- 1779.—*October 18. Boston.*—Narrating his difficulties in getting hay or grain. Complains bitterly of his present pay, as compared with that of a commissary of hides or deputy commissary of prisoners. Sets forth his expenses and the inadequacy of his pay. Declares, when the war is over, he must take to the highway with a pistol for a maintenance. Language inadequate to express the political situation. Scandalous treatment of his friend, Major Mersereau. "His little ribb" sends her most respectful compliments. Vol. iii, No. 46.

- 1778.—*October 24. Boston.*—In September, 1777, was Assistant Deputy Quartermaster-General at Springfield under Col. Chase. Recalled to Boston in November. Settled all his accounts with Col. Chase except that the Colonel refused to pay him four hundred and odd pounds, which he had advanced to the teamsters, to procure teams to transport certain articles to the southward. The teamsters have never been paid, and neither has he. Asks that the money may be paid.

Vol. viii, No. 33.

- 1778.—*October 25. Boston.*—A long letter, setting forth the evils resulting in the department from lack of money and the ill-will of the numerous creditors and duns. Cannot purchase in time for want of money. Wishes to know if the staff officers are entitled to draw clothing from Continental store.

Vol. viii, No. 34.

GORDON, PETER:

- 1779.—*May 11. Trenton.*—Informing him of the purchase of a pair of horses. Promises to send about twenty horses along with the pair. Vol. vii, No. 71.

GORDON, PETER (*continued*):

- 1779.—*May 15. Trenton.*—Number and description of horses sent forward. Vol. vii, No. 102.
- 1779.—*May 27. Trenton.*—Sends by bearer a load of barley for the General's horses. Vol. v, No. 80.
- 1779.—*May 28. Trenton.*—Acknowledging favor of 27th inst. Report of stores sent forward. Twenty horses in fine condition awaiting orders to be sent on to camp. Vol. v, No. 85.
- 1779.—*October 20. Trenton.*—Acknowledging favor of 17th inst. What he has done in the way of stationing expresses. Constant applications for horses by officers, escorts or express riders, but cannot possibly have fresh horses always ready. Vol. iii, No. 45.
- 1779.—*December 4. Trenton.*—Thinks he can spare eight or ten brigades to assist in collecting boards, etc., for hutting. Warns him to place a guard over them, as the wagon-master will try to give him the slip. No commissary stores on hand. Vol. viii, No. 36.

GORHAM, NATHANIEL:

- 1779.—*January 21. Boston.*—Having heard of Mr. Andrews' unhappy death, takes the liberty of offering his services in his place. Mentions various people who will vouch for his suitability for the position. Vol. viii, No. 35.

GREENE, C.:

- 1779.—*May 7. East Greenwich.*—Desiring arrangement of the officers in his regiment established by the War Office. Plea for Capt. Arnold. Still happy in Gen. Gates as a commander. Reasons for wanting his small services transferred to another State. Vol. vii, No. 42.

HAMILTON, ALEXANDER (Col.):

- 1778.—*November 8. Headquarters.*—His Excellency requests that two sets of tools be provided and sent to Gen. McDougall to blow up the rocks, which greatly impede his carting. Vol. iv, No. 52.
- 1779.—*January 4. Headquarters.*—At the General's request, desires his opinion of the number of expresses necessary to be kept in constant pay. Vol. viii, No. 40.

HAMILTON, ALEXANDER (Col.) (*continued*):

1779.—*February 23. Headquarters.*—Desires to know by bearer how far the preparations for vessels have gone and the amount of materials provided; the General's idea being to stop as short as possible, without leaving what is on hand incomplete.

Vol. i, No. 4.

1779.—*May 20. Headquarters.*—Concerning Mr. Duryee's application to have his farm released, which was taken up for the use of the hospital. The General does not wish to discriminate, without sufficient reason, so refers the matter to Gen. Greene, in order that he may relieve Mr. Duryee, if it can be done without inconvenience to others or injury to the service.

Vol. v, No. 40.

1779.—*May 22. Headquarters.*—By a letter received from Gen. Sullivan it appears that Poor's Brigade have left their tents behind. Asks that they may be supplied with them and other necessities. Gen. Sullivan in "his usual pother, but dispatch is certainly very desirable."

Vol. v, No. 59.

1779.—*August 17. Headquarters.*—Desiring that he furnish a good horse, saddle and bridle to Lieut. Whitehead, who carries important dispatches to Philadelphia for the General.

Vol. iv, No. 51.

1779.—*October 7. Headquarters.*—It is determined that Gen. Duportail and himself shall go to Count d'Estaing. Four horses will be necessary; therefore asks for an order on the person at New Windsor who provides horses for Gen. Greene.

Vol. iii, No. 88.

1780.—*January 21.*—Ordered by the General to ask if horses to carry the surgeons' chirurgical apparatus can be obtained from him [Greene] or from the brigades.

Vol. i, No. 5.

1780.—*February 23. Headquarters.*—Orders from the General to send some pontoons (?) from Fishkill for the use of the officers.

Vol. viii, No. 41.

HALL, BENEDICT EDWARD:

1779.—*January 1. Shandy Hall.*—Acknowledging Gen. Greene's (?) kindness in taking him into his suite. The kind of life he has led and is leading. Asks to be remembered to various people. Will attend him some time in April. Wants furlough for that time.

Vol. viii, No. 39.

HAND, EDWARD (Gen.):

- 1779.—*December 8. Mendham.*—The number of huts laid down in the general plan, viz., 24, to cover twelve men, not being sufficient, desires instructions immediately as to what alterations shall be made. Vol. i, No. 6.

HARLINGEN, ERNESTUS VON (Justice of the Peace):

- 1779.—*May 18. Somerset.*—Declines to allow the barns in the neighborhood to be used for the sick. Considers himself under no legal or moral obligation to promote a measure so excessively disagreeable to the people of the neighborhood.

Vol. v, No. 41.

HARMAR, JOSEPH (Lieut.-Col.):

- 1780.—*February 11. Headquarters.*—Asking for an order for a saddle, as the duties of the inspectorship require a great deal of riding.

Vol. i, No. 7.

HARRISON, ROBERT H.:

- 1779.—*October 5.*—Desiring to know whether the horses are ready for the officers going to Egg Harbor. If not, wishes them sent to New Windsor. Desires the express with the duplicate despatches to be sent to Gen. Sullivan.

Vol. iii, No. 89.

HART, WILLIAM D.:

- 1780.—*January 13. Paramus.*—Has sent out a party to secure a boat of his [Greene's], which drifted down. Difficulty of procuring anything on certificates, as the people are disgusted, no cash having been supplied to pay them since '77.

Vol. i, No. 10.

HAY, UDNY (Col.):

- 1779.—*January 5. Fishkill.*—So many complaints made to him and of him that he has requested the General for a court of inquiry. Desires hides sent on. Debt of the department to the artificers ought to be paid in money or clothes. Concerning his accounts. Will go to Congress on his own affairs as soon as Major Hale returns. Major Hale will handle the subject of cash with suitable eloquence.

Vol. viii, No. 50.

- 1779.—*January 9. Fishkill.*—Asks that he will intercede with His Excellency to obtain clothing for the artificers, who deserve some encouragement for remaining at their post.

Vol. viii, No. 44.

HAY, UDNY (Col.) (*continued*):

- 1779.—*January 9. Fishkill.*—Smiths and wheelwrights determined to leave unless their wages are raised. By the offer of such extravagant wages, Mr. Simmons has a second time depreciated the money. He [Col. Hay] is even suspected of pocketing that part of the wages which, by leaving the post, the artificers can easily get elsewhere. Suggests procuring artificers from the regiment. Matter of cordage. Need of a proper public tanner. Pay for teams. Concerning the completion of the works at West Point during the coming summer. Hopes Gen. Greene is homeward bound, loaded with money. Enclosing two addresses, concerning the wages of workmen.

Vol. viii, No. 42.

- 1779.—*January 21. Fishkill.*—Gentry of the staff have a considerable share in the alarming depreciation of the money. High price of teams. Waited on Governor Clinton with a letter to lay before the Assembly containing a plan for the quicker raising of carriages for public service. Concerning the wages of artificers and their discontent. Delay in his accounts. Matter of returns.

Vol. viii, No. 43.

- 1779.—*February 1. Fishkill.*—Acknowledging favor of 26th inst. No probability of obtaining clothing for the artificers. Workmen's complaints concerning their wages. Many evils which have arisen from Col. Lewis' conduct. Sends return for December. Plan of putting tanyard near the banks of North river.

Vol. ix, No. 45.

- 1779.—*February 10. Fishkill.*—Large supply of cash lately furnished, inadequate to pay all the demands on the department; therefore entreats for another supply; thinks \$100,000 will cover all debts. Desires his opinion on how fatigue men should be raised for the ensuing campaign; also the wages of certain workmen. Dispute with the justices as to the means of procuring teams. Legislature has brought in a bill nearly adopting his own plan for furnishing teams for the public service. The advantage of a uniform price in certain articles. Inconvenience of having no Justice of the Peace nearer than ten miles. Money needed to pay for wintering the horses.

Vol. iv, No. 63.

HAY, UDNY (Col.) (*continued*):

- 1779.—*February 13. Fishkill.*—The bearer of this, Mr. Stewart, will wait on Gen. Greene for positive instructions respecting the wages of the artificers engaged by the day. Must not lose either the wheelwrights or the smiths. Has passed his word that the matter shall be fully settled by the end of the month. Vol. iv, No. 61.
- 1779.—*February 18. Fishkill.*—In answer to his letter by Capt. Pendleton, has not heard a single complaint since the men joined Capt. Sizer's regiment. Were he convinced it would be of any service to the public, would willingly remove them. Vol. iv, No. 55.
- 1779.—*February 19. Fishkill.*—Asking for a full supply of blankets. Difficulty in procuring teams. Oldest man in the county never remembers to have seen a winter so bad for the business of transportation. Vol. iv, No. 53.
- 1779.—*February 23. Fishkill.*—Acknowledging his favor of the 17th inst. Difficult to separate provisions sent to French fleet from provisions sent to American army. Received the \$30,000, but would like the other \$70,000 to fully settle his accounts. Little dispute with some of the Justices tolerably well settled. Enclosing his first letter to the Governor, proposing a new mode of raising teams. Will be glad of any amendments. Vol. iv, No. 58.
- 1779.—*February 24. Fishkill.*—Concerning the method of paying Capt. Lamb's company of wheelwrights. Vol. ix, No. 46.
- 1779.—*May 11. Fishkill.*—Wagoners to be exempted from military duty during their term of service. Praises the Governor for the pains he has taken to serve the department. Difficulty of impressing teams. Wages of fatigue men. Question of forwarding the seven traveling forges. Scarcity of horses; the cheapest cost \$1000 apiece. Waiting patiently for supply of cash. Col. Robert Livingston's iron works; needs 4000 cord of wood. Difficult to procure pasture. Sends copies of returns. Payment of certificates for transporting baggage of the Convention troops. Asks for late resolve of Congress respecting treatment of staff officers charged with any crime. Wages of artificers. Has written Col. Smith to hasten the

HAY, UDNY (Col.) (*continued*):

stores from Springfield. In want of canvas for tents. Gives reasons for differing with Gen. Greene about a court of inquiry. Vol. vii, No. 72.

- 1779.—*May 12. Fishkill.*—Has just been informed of some clothing, which will be moth-eaten should it lie by all summer. Asks that a proper proportion may be used for the artificers at the post. Vol. vii, No. 82.

- 1779.—*May 12. Fishkill.*—Praise for his assistants. Gen. Greene's recommendation to Congress to advance assistant quartermaster's pay to \$140 per month at first sight appears generous; on second thought, considers it inadequate to their services, considering their expenses. Must raise artificers' wages or lose them. Officers of artificers beg dismissal from the service, producing certificates to show that their families are starving for bread,—no wonder! with wheat at \$25 per bushel! Vol. vii, No. 81.

- 1779.—*May 22. Fishkill.*—Requesting a large supply of cash. Wages of artificers. His fears of a want of provisions for the army in that vicinity. The numerous calls upon the State of New York as compared with Connecticut. His differences with Capt. Starr on the subject. Has a severe touch of fever; if it continues, will be obliged to go to the seaside for a fortnight. Miscarriage of His Excellency's dispatches to Gen. Clinton. Vol. v, No. 54.

- 1779.—*May 26. Fishkill.*—Acknowledging favor of the 24th inst. Will supply the Governor's wants as soon he knows them. Concerning the purchase of horses. Called up the night before by an express from Gen. McDougall, announcing a probable attack by the enemy on his (Col. Hay's) quarters. His embarrassing situation without a penny to pay for anything. Will try to borrow from the Treasurer. Vol. v, No. 70.

- 1779.—*October 1. Fishkill.*—Acknowledging favor of 30th ult., and will do his best to forward the boats. Must have fatigue men. Large quantity of forage at Claverack and other landings needs to be brought down. The bearer of this has fourteen horses to deliver, in tolerably good order.

Vol. iii, No. 90.

HAY, UDNY (Col.) (*continued*):

- 1779.—*October 2. Fishkill.*—Wishes copy of a certain resolve of Congress. The pay given the carpenters from Philadelphia, necessary as it was, has set all the rest of the department in a ferment. Comparisons being made all the time between New York and other States. Demands for higher wages. All this makes a very disagreeable situation. Difficult to get carpenters to repair bateaux. Vol. iii, No. 91.
- 1779.—*October 5. Fishkill.*—Advises sending parties of twenty men each to Albany to collect all bateaux, etc., on either side of the river and bring them down to Fishkill Landing. Vol. iii, No. 92.
- 1779.—*October 7. Fishkill.*—Carpenters ready to work on the boats, but as yet no boards have arrived from Albany. Asks that a number of boards and planks be sent up from the fort and with them a small fatigue party to expedite the work. Uneasy about tar; expects to seize some, though it be private property. Fourteen horses will set off for New Windsor. Vol. iii, No. 50.
- 1779.—*October 8. Fishkill.*—Concerning a supply of tools for the carpenters. Totally destitute of handsaw files; advising him how to procure some more, and of the quickest way to send them. Vol. iii, No. 51.
- 1779.—*October 9. Fishkill.*—Enclosing extract from a letter of Col. Lewis. Thinks the building of the bateaux should claim precedence of the cooper's shop. Plenty of boards at Saratoga. Will forward any letter to Col. Lewis that Gen. Greene may think proper to write. Vol. iii, No. 52a.
- 1779.—*October 10. Fishkill.*—Acknowledging favors of 7th and 9th insts. Disposition made of the 120 privates sent. Steps taken to purchase the needed boards. Duck enough to complete 170 tents, and will then patch up all the condemned ones. Thinks the vessels are sometimes unnecessarily detained at the fort; asks Gen. Greene to mention this to the engineer and Mr. Buchanan. Plans for getting sufficient hay. Question of the wages of bateaux men. Asks that the enclosed be delivered to Col. Russell. Has sent to Col. Pettit for cash. Would it be possible to obtain \$50,000? Vol. iii, No. 67.

HAY, UDNY (Col.) (*continued*):

- 1779.—*October 14. Fishkill.*—Sends camp-stools by bearer. Will need large quantity of clothing. Wagoners destitute of blankets. Wants an answer from Gen. Greene to paragraph in Col. Lewis' letter relating to the raising of bateaux.

Vol. viii, No. 53.

- 1779.—*October 15. Fishkill.*—Distemper raging among the horses has proved extremely mortal; the farrier, after a tolerably decent flogging, has run away; wishes a good one might be procured, who could save many of their lives. Camp-stools, which were forgotten, have been sent. Vol. iii, No. 68.

- 1779.—*October 15.*—Sends by bearer a chest with a lock of his own construction, which cannot easily be picked. Hopes it will please the General. Vol. iii, No. 69.

- 1779.—*October 16. Fishkill.*—Begging him to procure for them files and nails wherever they can be obtained. Encloses the determination of the judges respecting the price of teaming and forage. Mistake of officer about collecting the bateaux. Reminds him to send the farrier. Vol. iii, No. 70.

- 1779.—*October 19. Fishkill.*—Acknowledging his favor of the 17th and Major Burnet's of the 18th insts. Good prospects of obtaining nails. Has directed two of the largest sloops to be sent to Albany for boards. Boat-builders destitute of clothing; would wish them either supplied with clothes or returned to their regiment, the service they do being trifling.

Vol. iii, No. 71.

- 1779.—*October 21. Fishkill.*—Received from Col. Pettit \$171,000, which, if the remainder of the campaign prove active, will last but a short time. Scarcity of tents; suggests the building of temporary huts. Question of supplying the riding horses of the officers of militia with hay and grain, and also the wagon horses needed by the different regiments. Asks that Thos. Allen, of the Maryland Regiment, a carpenter with a talent for driving on business, may be allowed to pick out his own company of boat-builders, if Gen. Greene thinks of making an addition to the present number. Vol. iii, No. 72.

- 1779.—*October 21. Fishkill.*—Regrets to trouble him in the midst of public business; necessary, however, to set before him the grievances of his assistants. Compares their salary before the

HAY, UDNY (Col.) (*continued*):

depreciation of money with the amount they now receive. A whole year's pay inadequate to buy them a suit of clothes. Hard case of Mr. Whiting. Demonstrates the fact that poor pay produces poor service. Earnestly requests him to make application to Congress or the department must be broken up. Encloses letters to prove that it was his wish to postpone this matter till the campaign closed. Suggests that the pay should be changed according to the fluctuations in the state of the money. Discontent of the assistant quartermasters not surprising, when they know that a common laborer receives four times their pay.

Vol. iii, No. 53.

- 1779.—*October 22. Fishkill.*—Boat-builders at Wappen's creek will not continue unless they receive \$45.00 a day. Asks what he must do.

Vol. viii, No. 45.

- 1779.—*October 23. Fishkill.*—Acknowledging three favors of 22d inst. Tents for militia; where they shall camp. Will write the Governor for forage. Arrival of vessel at fort with military stores and boards. Maj. Ayres' men boasting of higher wages, and thereby creating discontent. Concerning the necessity of getting a supply of provisions to the garrison at West Point.

Vol. viii, No. 55.

- 1779.—*October 25. Fishkill.*—Carpenters at Wappen creek have quitted work, and refused to begin again until a promise was made them that the bearer would see Gen. Greene and ask that they receive the same wages as Maj. Ayres' men. Col. Hay thinks this request founded on strict justice. Discretion of bearer.

Vol. viii, No. 56.

- 1779.—*October 29. Fishkill.*—The bearer, Mr. Stewart, is on his way to King's Ferry to take charge as quartermaster, and waits for instructions. Col. Hubbard cannot get a yard of duck in his State. Advises a halt in the building of bateaux—no boards will be left for many necessary objects. Gives return of bateaux at Wappen's creek. Caulker needed. Wages of artificers. Smiths demanding equal wages with those in Philadelphia, "that sink of pollution." Without money transportation must stop. Wheelwrights demand a raise in their wages.

Vol. viii, No. 52.

HAY, UDNY (Col.) (*continued*):

- 1779.—*October 30. Fishkill.*—Desiring information about the cutting of the wood. Impossible to detain vessels without putting a stop to the forage business. Will not bateaux answer for transporting the troops destined for Albany? Asks him to order back the King's Ferry men from the fort, as they are needed at the landing. Vol. viii, No. 54.
- 1779.—*November 3. Fishkill.*—Neither hay nor grain at West Point, owing to lack of craft to bring it down the river; suggests laying platforms on boats and bringing it down on them. Vessels in want of rigging, sails and anchors. Vol. ix, No. 49.
- 1779.—*November 5. Fishkill.*—Concerning the wages of artificers. Encloses letters on the subject. Wages of express riders. Vol. ix, No. 50.
- 1779.—*November 6. Fishkill.*—Destination of Cpts. Mills', Willcox's and Pendleton's companies. Improvements in the store and hospital, and a new guard-house to be built. Necessity for Maj. Ayres' people discontinuing the boat-building. Condition of certain roads. Number of water-craft must be increased. Vol. ix, No. 53.
- 1779.—*November 9. Fishkill.*—Acknowledging favors of 7th and 8th insts. In reply to his remonstrations, the artificers have gone to work. Has applied to the Governor. Forage on the confines of the river cannot be brought down, owing to lack of vessels. Has stopped work on hospital, in accordance with Gen. Greene's orders. Has desired Mr. Stewart to return to Fishkill. Not responsible for want of flour. Owes many accounts; his credit sinking in proportion to the depreciation of money. No blankets and shoes. Vol. ix, No. 54.
- 1779.—*November 11. Fishkill.*—If he has not a speedy supply of cash, the business of his department must cease. Hardly anything prepared for the reception of the troops into winter quarters. High price of necessary articles. His principal assistant has left in disgust, and his next oldest declares that he won't receive another shilling unless Congress thinks proper to make his pay in some degree adequate to his services. Vol. ix, No. 57.

HAY, UDNY (Col.) (*continued*):

- 1779.—*November 14. Fishkill.*—Twelve barrels of tents arrived from Messrs Otis and Henley; has ordered them stored at the landing until further orders. Vol. ix, No. 58.
- 1779.—*November 14. Fishkill.*—Acknowledging favor of 12th inst. Does not know of any preparations made for depositing shoes at King's Ferry. Has desired the quartermaster there to build some log huts for the ferrymen to live in. Vol. ix, No. 59.
- 1779.—*November 15. Fishkill.*—Enclosing copy of letter from Col. Van der Berg, respecting the pay his son is to receive as one of the expresses. Asks for information on that head. Must have a supply of boards. Vol. xii, No. 7.
- 1779.—*November 24. Fishkill.*—Has just been informed that the wife of his old colonel (Col. Hayen) is on the road to the Jerseys. Requests Gen. Greene to ask any of the gentlemen with him to procure quarters for her in the vicinity of the place where the colonel's regiment will be stationed. Vol. ix, No. 56.
- 1779.—*December 9. Fishkill.*—New and almost insurmountable difficulties. Cannot obtain forage owing to lack of money. Nothing can save his department from ruin, and the army from disbanding but the adoption of a new mode for obtaining forage; explains this in detail. The impending storm could have been averted by an opportune supply of cash. Vol. viii, No. 46.
- 1779.—*December 9. Fishkill.*—Grievances of the assistant quartermasters; thinks Congress in all fairness ought to take them up. Wagoners' certificates. The advantage of building two vessels. Complaints of artificers well founded, but out of his power to remedy. Number of shoes purchased. Clothing wanted. Suggests Col. Lewis laying in a stock of forage. Vol. viii, No. 48.
- 1779.—*December 9. Fishkill.*—Enclosing a memorandum of stores wanted at once. Would like a supply of saddlers' tools. Wishes to be put in a direct channel for drawing his supplies. Vol. viii, No. 47.

HAY, UDNY (Col.) (*continued*):

1779.—*December 25. Fishkill.*—Enclosing returns of officers and men employed in his department, and explains one or two omissions. Vol. viii, No. 49.

1780.—*January 6. Fishkill.*—Telling him to charge \$100 to the account of Jonathan Ruckman, express rider.

Vol. i, No. 17.

1780.—*February 6. Fishkill.*—Congratulating him on the latest addition to his family. Recalling the bearer, Hawkes Hay, to his memory, his many virtues and his need of employment.

Vol. i, No. 13.

1780.—*February 9. Fishkill.*—Acknowledging letter of 2nd inst. His fears for the army. Question of appeal by Congress to the States for supplies. Would rather be the agent for his own State (if it comes into the measure) than risk the embarrassments arising from a State quartermaster. Constitution failing him under the fatigues and annoyances of his position. Busy with cash accounts. Most of their debts to artificers, masters of vessels and wagoners, who depend only on this money for the support of themselves and family. In case Congress sends a supply of wheat, has chosen a safe place for storing it. Lack of wagoners. Question of a debt to a ropemaker. Desires printed certificates to give those who bring in accounts and cannot be paid.

Vol. i, No. 12.

1780.—*February 11. Fishkill.*—Laying before him an account of damages sustained by a certain claimant; already laid before Congress but evidently overlooked. Waiting for money from the Treasury to discharge his expresses. Want of flour. Will pay Congress a visit soon if they do not assist him. Hears that 600 barrels of flour are coming to West Point from the southward; hopes it is true.

Vol. i, No. 18.

HAZEN, MOSES (Gen.):

1780.—*January 2. Camp near Morristown.*—Begging him, for private reasons, to facilitate the departure of the Reverend Pierre Bartheaume for Philadelphia.

Vol. i, No. 16.

HEER, BARTHOLOMEW VON (Capt.):

1779.—*January 24. Millstone.*—Asking for a blacksmith's cart, to enable him to get the horses in his troop shod, as they need it badly.

Vol. viii, No. 99.

HENRY, JAMES M.:

- 1779.—*May 24. Headquarters.*—Desired by His Excellency to supply Col. Shreve with wagons to move his tents.
Vol. vi, No. 8.

HODGSON, SAMUEL:

- 1779.—*May 12. Pluckemin.*—Asking for an order to procure any quantity of German steel, the nearer to Philadelphia the better.
Vol. vii, No. 74.

HOLLINGSWORTH, HENRY (Col.):

- 1779.—*January 23. Head of Elk.*—Concerning wagonage from Chester county to Philadelphia. Vol. ix, No. 60.
- 1779.—*February 4. Head of Elk.*—Acknowledging favor of 2d inst. Has dispatched the packet to Mr. Calhoun at Baltimore. Difficulty of retaining teamsters; their pay and their time of service. Question of paying his under-agents, who are commissioned to buy various products of food. Must offer sufficient salary to encourage gentlemen of fortune, character and business to undertake the work. Question of forage.
Vol. i, No. 19.
- 1779.—*February 9. Head of Elk.*—Concerning the terms on which to hire the wagons. Will bring his accounts up with him in a few days. Reason for not sending on more forage; very scarce at present. Wants money. Vol. iv, No. 50.
- 1779.—*February 10. Head of Elk.*—Acknowledging favor of 2d inst. Evil results arising from the purchase of corn and grain by persons not of his appointing. Trustworthiness of the gentlemen he has employed. If, however, any of his agents have erred, they shall be dismissed. Wages of wagoners. Need of cash. Vol. iv, No. 48.
- 1779.—*February 10. Head of Elk.*—Copy of letter No. 48 in Vol. iv. Vol. vii, No. 27.
- 1779.—*February 11.*—Concerning the conduct of Wagonmasters Anderson and Caswell. Wagoners' natural preference for private hauling. No court-house or prison in the county where business can be transacted. On examining Act of Assembly for prohibiting speculators, finds it so inconsistent that it commends the very thing it prohibits. Vol. iv, No. 49.
P. S. to No. 48.

HOLLINGSWORTH, HENRY (Col.) (*continued*):

- 1779.—*February 25. Head of Elk.*—Acknowledging favors of 14th and 16th insts. Difficulty of procuring forage and keeping it out of the hands of speculators. Promising a constant supply of corn. Enclosing a few verses (Vol. x, No. 6a) wrote by a young lady, a friend, who asked him to deliver them to Gen. Greene. Vol. x, No. 6.
- 1779.—*May 3. Philadelphia.*—Acknowledging favor of 14th ult. by Major Burnet. Declares every charge in that letter untrue and the report of slanderous tongues. Defends himself against charges—*i. e.*, loss of the people's confidence, and the putting his relations in office. Thanks Gen. Greene for his impartial inquiry. Thinks the source of most of the complaints is the lack of a proper distinction between the quartermaster's and the commissary business. Vol. vii, No. 22.
- 1779.—*October 8. Head of Elk.*—Acknowledging favor of September 29 from Gen. Greene (?). Has forwarded his whole returns to Col. Pettit, but in future will send them to Gen. Greene every month if possible. Thanks him for caution respecting forage; will send on all he is able to procure. Vol. iii, No. 75.
- 1779.—*October 13. Philadelphia.*—Enclosing returns of assistants, clerks and other persons employed at the Elk post. The wharf almost completed, and the store all ready to raise. Want of forage. Postponing taxes until December, impolitic. Wishes such part of his letter communicated to Col. Clement Biddle as may be necessary. Vol. i, No. 20.
- 1779.—*November 23. Philadelphia.*—Report of his department, of the work accomplished and that contemplated. Has been obliged to employ new assistants, the old ones having left on account of low wages. Laborers receive double the pay of his assistants. Vol. ix, No. 61.
- 1780.—*January 5. Head of Elk.*—Acknowledging favors of 10th and 18th insts. Question of accounts. Reason of certain complaints. Will explain the matter personally to him when he comes to Philadelphia. Carolina troops under Gen. Hogan passed Susquehanna with much difficulty, those of Virginia by way of Lancaster. Vol. i, No. 21.

HOLLINGSWORTH, HENRY (Col.) (*continued*):

- 1780.—*January 5. Head of Elk.*—Passing of an Act by the State appointing commissioners to seize both provisions and forage, for the readier and more effectual supplying of the army. Corn now selling at \$20.00 which three weeks earlier cost ten pounds.

Vol. i, No. 22.

P. S. to No. 21.

HOOPER, ROBERT LETTIS (Col.):

- 1778.—*June 26. Easton.*—Sends by Mr. Hugh Bartley twelve four-horse teams, a number of spades, pick-axes, shovels, etc. Is Gen. Pulaski's corps to have twelve valises without paying for them?

Vol. x, No. 12.

- 1779.—*February 6. Easton.*—Enclosing extracts of several letters, to show the orders he has received and the measures he has pursued. Has raised 48 teams on a contract for three months to carry on the flour mentioned in these letters. Acknowledging his letters of 23d and 28th ult., glad Gen. Greene approves of his candid reports. Will have his accounts to January 1 completed before the end of the month. Must ask for money, however, to complete his present contracts, so begs him to send \$100,000 by the bearer, Mr. Strouse. Can procure pack-saddles. "Has grown monstrous fat by Mrs. Greene eating and drinking his health."

Vol. iv, Nos. 44 and 46.

- 1779.—*February 6. Easton.*—Exact copy of letter, Vol. iv, No. 44. (See preceding letter.)

Vol. iv, No. 45.

- 1779.—*February 15. Easton.*—Acknowledging letter of 13th inst. and also \$7920. If an Indian expedition is determined on, can provide kegs. Has provided everything necessary for the infantry belonging to the Legion in their march through Georgia. Teams at Sussex Courthouse entered for three months; if the flour is not sent on, the expense will be great. Mrs. Hooper joins him in begging Gen. Greene and his wife to visit them.

Vol. iv, No. 43.

- 1779.—*February 18. Easton.*—Question of the best pack saddles; will prepare materials for 1000. Difficulty of procuring teams at the price. The people's dislike to Continental money.

Vol. iv, No. 42.

HOOPER, ROBERT LETTIS (Col.) (*continued*):

- 1779.—*February 25. Easton.*—Can procure 1500 pack-saddles by the middle of April. Will be with him the following evening. Vol. x, No. 1.
- 1779.—*May 5. Easton.*—Describing the three routes from Wyoming to Fort Schuyler, and asking him to decide on one for the army. Forty-two prisoners of war, officers and privates, at Easton and Bethlehem; thinks they ought to be removed to some place out of the route of the army. Mrs. Hooper on a visit to her friends in Trenton. Vol. vii, No. 30.
- 1779.—*May 5. Easton.*—Business of engaging teams and teamsters. Money needed to carry it on successfully. Linen needed to complete saddles. Scarcity of forage. Will use his best endeavors to get Mrs. Greene's horses. Vol. vii, No. 29.
- 1779.—*May 11. Easton.*—Three hundred horses will be at headquarters by the 15th inst. Unless Col. Biddle sends horse feed, cannot subsist the horses through to Wyoming. Vol. vii, No. 73.
- 1779.—*May 12. Easton.*—Number of horses on hand. Needs money. Honored by the esteem of such men as His Excellency and Gen. Greene. Must have horse feed. Vol. vii, No. 85.
- 1779.—*May 12. Easton.*—Bearer is Mr. Jacob Schank, conductor of twelve teams; asks the General to spare a moment to view the teams and teamsters, that he may know how the business is being done by him. Need of money. Vol. vii, No. 88.
- 1779.—*May 12. Easton.*—Business of pack-saddles. Any delay in bringing on the teamsters and horses no fault of his, but due to want of money. Appointment of Capt. Bond to superintend and direct the pack-horsemen. Vol. vii, No. 84.
- 1779.—*May 12. Easton.*—Recommending to his notice Mr. Bond, who has been appointed to superintend the pack-horsemen. Mr. Bond honored by Governor Livingstone with the rank of Lieutenant-Colonel in the First Regiment in Sussex County, and with other important trusts. Vol. vii, No. 93.
- 1779.—*May 15. Easton.*—Acknowledging favor of 13th inst. by Col. Bond. Difficulty in subsisting the pack-horses and in procuring horse-drivers. Has not ten dollars in the bank.

HOOPER, ROBERT LETTIS (Col.) (*continued*):

Has completed preparations for Indian expedition, except the pack-horsemen, which he cannot raise for want of money. Business of calling out private teams. Has sent keg of butter to Mrs. Greene and one to Mrs. Biddle.

Vol. vii, No. 101.

1779.—*May 17. Easton.*—Will carefully attend to every part of his letter of the 15th inst. Has directed Col. Bond to parade his men at Easton on Tuesday. Has drawn on Col. Pettit for £300,000. Asks him to put the matter of calling out the teams on a good footing with Governor Read. States his reasons for distrusting Mr. Van Vleck, and thinks on no account should he be allowed to enter New York and come out again. Has also some doubts of the Mr. Smith mentioned in Mr. Okely's letter.

Vol. v, No. 16.

1779.—*May 18. Easton.*—Acknowledging letter of 16th inst. At four days' notice, will parade 1400 horses for the use of Gen. Sullivan's expedition, but at a loss where to get forage, unless Col. Biddle helps him. Has sent temporary relief to Capt. Patterson.

Vol. v, No. 11.

1779.—*May 19. Easton.*—Directed by Gen. Sullivan to send express to Gen. Greene for 200 portmanteaus and 3000 canteens. Will accompany Gen. Sullivan the following day to view the road cut in the great swamp, already three miles long.

Vol. v, No. 25.

1779.—*May 23. Easton.*—Has been assisting Gen. Sullivan at Pocono Point. In receipt of \$444,000 from Col. Pettit, which he has paid out. If well supplied with money, will coax the farmers out. Mr. Stewart's mistake, in ordering the magazine to Van Campen's, has caused great damage. Immediate need for tents.

Vol. vi, No. 2.

1779.—*May 27. Easton.*—Acknowledging letter of 25th inst. Report of pack-saddles and horses on hand, and the number of teams for hauling stores. Will send on Mrs. Greene's horses as soon as they come.

Vol. v, No. 82.

1779.—*May 31. Easton.*—Informing him that in company with Gen. Sullivan he has returned from Col. Cortlandt's headquarters in time "to drink a dish of tea with Mrs. Hooper."

HOOPER, ROBERT LETTIS (Col.) (*continued*):

Progress of Col. Cortlandt's work. Forwarding of troops and removing of stores. Depreciation of money. Unaccountable delay in getting the horses for Mrs. Greene.

Vol. vi, No. 22.

1779.—*October 8. Easton.*—Acknowledging letter of 5th inst. Has received Gen. Sullivan's orders to send 100 teams to Wyoming. Teams now on the way and the whole army likely to reach Easton by the following Friday. Fears only the want of flour and horse feed, which cannot be had without money.

Vol. i, No. 24.

1779.—*October 14. Easton.*—Acknowledging letter of 10th inst. Particularly pleased with the esteem and approbation therein contained. Whole of western army will reach Easton the following day *en route* to headquarters. Will provide 100 teams for them. Great want of money. People's great dislike of the money; will not sell their produce for it.

Vol. viii, No. 60.

1779.—*October 22. Easton.*—In accordance with instructions will have 100 teams, with ten days' forage for each team, ready to move with the army by the following Wednesday. Begs him to read this letter to Col. Biddle.

Vol. iii, No. 74.

1779.—*November 12. Easton.*—The people tickled by the enclosed address (No. 64*a*), returned in pretty good humor. Twenty boats completed and launched, which will arrive at Trenton on Monday next. Number of boards at Minisink. Will send candlesticks to Mr. Thompson next week.

Vol. ix, No. 64.

1779.—*November 16. Easton.*—The bearer, Mr. John Fordsman, one of Col. Hooper's wagon conductors, and all his people want clothing. Asks his kind attention to the request.

Vol. ix, No. 65.

1779.—*November 30. Easton.*—Arrived safely at home and found Mrs. Hooper doing well. She sends Mrs. Greene a saddle of venison. James O'Hara detected in passing counterfeit Continental money; encloses the unfortunate youth's confession; begs Gen. Greene to obtain a pardon for him and

HOOPER, ROBERT LETTIS (Col.) (*continued*):

prevent the dreadful shock and disgrace to his family. The bearer, Mr. John Armstrong, is his uncle. Requests him to jog Lord Stirling's memory to send for the deserters now confined in Easton gaol. Vol. ix, No. 68.

1780.—*January 29. Easton.*—Enclosing papers concerning his situation in point of business, and promising to send on the cannon, etc. on the following Sunday. Desires to know if Gen. Greene has received the venison and poultry? Compliments to Mrs. Greene. Vol. i, No. 27.

1780.—*February 27. Easton.*—Has a number of wagons, but no money with which to repair them. Impossible to make any further contracts or to carry on the transportation; his debt amounting to one million pounds. Vol. i, No. 26.

1780.—*February 28. Easton.*—Happy to have his concurrence and Mr. Biddle's in the enclosed circular letter to all his assistants (MSS. No. 29). Necessity obliged the step, which must occasion a great convulsion in the western district under Gen. Greene. Vol. i, No. 30.

1780.—*February 28. Easton.*—Attempts to procure money fruitless. No further contracts must therefore be made, nor must articles appertaining to the quartermaster or forage departments be purchased for the use of the United States, until further instructions are received from Gen. Greene, Col. Biddle or himself. Begs them to come to the office and close their accounts, so that he may furnish Gen. Greene with a list of debts due against the department. Vol. i, No. 29.

The original, of which this is a copy, was sent to all Col. Hooper's assistants in the quartermaster department.

HOUSTON, WILLIAM C. :

1780.—*January 14. Treasury Office, Philadelphia.*—Question of liquidating and receiving payment for the accounts of the United States against the troops of the Convention of Saratoga. Encloses a copy of a part of Congress' resolutions on the subject. Vol. i, No. 31.

HOW, BAXTER :

1779.—*January 10.*—Desiring to know whether to carry the tents to Middlebrook, Morristown or Trenton; if to the last named

How, BAXTER (*continued*):

place, he could bring back Continental rum in return, which would be of service to the brigade. Vol. i, No. 32.

- 1779.—*May 10. Artillery Park.*—Ordered by Gen. Knox to furnish thirty-four horses for the artillery, which will move the following day. Has only twelve horses; applies to Gen. Greene for the other twenty-two. Vol. vii, No. 54.

HOWE, ROBERT (Gen.):

- 1779.—*October 10. Poim Bridge.*—Gen. Heath will forward the address; apologizes for not getting it signed and sending it on sooner. His covered wagon broken down; relies upon Gen. Greene's friendship to send him one at once. Caution against rough handling of the address. Vol. i, No. 36.

- 1779.—*October 29. Drake House.*—The address pleases his brother officers; hopes it may have an effect on Congress. Doubtful as to the propriety of writing to Gen. Gates; would like Gen. Greene's (?) opinion. Reasons for not writing more: is d—d hungry, a little vexed and the paper is bad.

Vol. i, No. 34.

- 1779.—*October 26. Poim Bridge.*—Introducing the bearer of the letter, a British officer, who, disgusted by some ill treatment, has come over to the Americans. His situation one to excite compassion. His horse being worn out, has lent him one as far as Mandeville (?). Trusts that Gen. Greene will furnish him with means of getting to Philadelphia, and will be kind to him whether he deserves it or not. Vol. i, No. 33.

- 1780.—*January 18.*—Begging him to add a blanket, a coat and a pair of boots to the order given the wagoner, who has a claim to the two first and a need for the whole. Vol. i, No. 35.

HUBBARD, NEHEMIAH:

- 1778.—*November 9. Hartford.*—Acknowledging favor of 6th inst. Has appointed Mr. James Bull, of Hartford, as deputy quartermaster-general, to accompany the Convention troops through the State as far as North river. Concerning supplies on the march. What is Mr. Bull to be allowed for his services and his assistants? Vol. x, No. 50.

- 1779.—*February 6. Hartford.*—Acknowledging favors of January 5, 20 and 27. Was confined to his room for over a

HUBBARD, NEHEMIAH (*continued*):

fortnight. Sent Capt. William Bull to charter a sufficient number of vessels to freight 1000 casks of rice. Acknowledging the money forwarded by Col. Pettit. Plans for remedying the scarcity of forage impossible, on account of the behavior of the farmers. Mrs. Hubbard still very ill.

Vol. iv, No. 41.

1779.—*February 19. Hartford.*—Acknowledging favor of the 9th inst. Wrote him on the 4th concerning his ill success in procuring vessels to freight rice from South Carolina; never had a piece of business that cost more trouble and fatigue to so little purpose. Enclosing returns. Proper salary for good assistants.

Vol. iv, No. 38.

1779.—*February 24. Hartford.*—Since writing, Col. Wadsworth has given him orders to make certain concessions to the owners of vessels, which will put several at his service; gives dates and places of sailing. Will set out at once in quest of more vessels. Has sent Mr. Richard Skinner for a supply of casks, the former supply being exhausted. Asks his opinion on the subject of certain payments.

Vol. iv, No. 39.

1779.—*May 3. Hartford.*—For want of money, unable to get Gen. Putnam's horses and wagons, etc., ready by the 10th; also unable to transport a large quantity of salt provisions and flour, or to engage forage for the approaching season.

Vol. vii, No. 21.

1779.—*May 13. Hartford.*—Acknowledging favors of 30th ult. and 2d inst. Arrival of Mr. Jones with \$392,000, which is entirely exhausted. Hopes the bearer, Mr. Wadsworth, may be given a supply. Depreciation of currency caused by lack of money. Number of tents and portmanteaus sent forward and those on hand. Expects to engage a sufficient number of wagons for Gen. Putnam's division. The forwarding of great quantities of provisions will require a very large supply of cash. Encloses estimate of cash needed (No. 91a).

Vol. vii, No. 91.

Estimate of cash needed for June and July, with a deficiency for the months of April and May.

Vol. vii, No. 91a.

HUBBARD, NEHEMIAH (*continued*):

- 1779.—*May 26. Hartford.*—Enclosing copies of agreements made with the owners of the schooners "Industry" and "Prudence," the only vessels that would be chartered in the State on any terms. Poor success in recruiting wagoners.

Vol. v, No. 73.

- 1779.—*October 11. Hartford.*—Acknowledging favors of September 29 and October 3. Has collected all the scows in the Continental shipyard in Chatham; only sixteen will answer. Capt. Bush offers, if needed, to make a boat a day for ten days. Will have all in readiness at a moment's warning, on the arrival of a French fleet. Fixing expresses at various posts. Whaleboats cannot be procured without payment down. Nothing can go on without money. Is sending the bearer, Mr. Caldwell, to Col. Pettit with an urgent request for a supply.

Vol. iii, No. 77.

- 1779.—*October 14. Hartford.*—Acknowledging his favor of the 10th inst. Promising 200 tons of best English hay, ready to be shipped when wanted. Has sent a person in quest of boards. Believes twenty flatboats might be built in twenty-five days from this time. Unless he receives a small supply of money nothing can be done.

Vol. iii, No. 78.

- 1779.—*October 15. Hartford.*—Reporting the conduct of one of Gen. Greene's expresses, whose name he has forgot—"an impudent, idle fellow!" No pay received for a public horse ridden by Mr. Long, an express-rider, to Boston and back.

Vol. iii, No. 79.

- 1779.—*October 17. Hartford.*—Acknowledging his favor of the 13th. Will immediately set as many people to work as he can, to cut timber, and saw plank. Flat-boats shall be built with all possible despatch. No money, nor can he borrow any.

Vol. iii, No. 80.

- 1779.—*October 20. Hartford.*—Acknowledging favor of the 16th inst. Has taken every measure to have the boats completed by the time they may be wanted, and the hay will be pressed in season; nothing wanting but cash. Carpenters refused to continue work unless paid every Saturday night. Borrowed money for their first week's wages, and also for certain teamsters who had carted loads to Fishkill. Hates to do this

HUBBARD, NEHEMIAH (*continued*):

and must again beg for a supply of money or the carpenters will quit work. Vol. iii, No. 81.

1779.—*October 26. Hartford.*—Acknowledging favors of the 19th, 21st and 22d insts.; also order from Col. Pettit on the Loan Office for \$400,000, which enables him to pursue the business with spirit. Building of boats progressing. Arrival of Lieut.-Col. Stevens and his departure for Springfield. Expects to start himself for New London to procure vessels and make the necessary preparations. Gen. Greene's horse in a good way. Vol. i, No. 40.

1779.—*November 4. Hartford.*—Agreeable to directions of October 21, proceeded to New London, and purchased certain ships. Transportation of hay; number of boards procured. Vol. ix, No. 62.

1779.—*November 9. Hartford.*—Report of the building of boats at Chatham. Stationed express-riders very uneasy to know what their wages will be. Vol. ix, No. 63.

1779.—*November 30.*—Questions concerning the Quartermaster's department, asked Gen. Greene by Nehemiah Hubbard, and Gen. Greene's replies. Vol. ix, No. 67.

1779.—*December 27. Hartford.*—Acknowledging favor of 21st inst. Anxious to know the contents of the letter forwarded by him to Col. Moylan; will submit to His Excellency's determination in the matter. Will secure any duck that may come into Connecticut. Vol. viii, No. 62.

1780.—*January 20. Hartford.*—Acknowledging letter of 2d inst. and enclosing estimate of the debts due in his district. Cavalry unable to get to Colchester on account of the snow. Heard that Col. Moylan's regiment was on the way to the place assigned for their winter quarters; exceedingly against their will. Col. Sheldon's regiment tarrying at Weathersfield, as soldiers of both regiments could not possibly be provided with suitable barracking at Colchester, not having a blanket in both regiments and very few cloaks. Question of His Excellency's allowing Col. Sheldon's regiment to remain at Weathersfield. Vol. i, No. 41.

HUBBARD, NEHEMIAH (*continued*):

1780.—*February 10. Hartford.*—Acknowledging letters of 29th and 31st ult. Has secured all the duck possible without money. Order of His Excellency, the Commander-in-chief, to the Governor, to remove one regiment to any town in the State (Connecticut). Col. Moylan's arrival in the State with a mistaken notion of the extent of his authority. Will discharge all the teams unless they agree to serve the next campaign.

Vol. i, No. 37.

1780.—*February 11. Hartford.*—Enclosing a copy of an account presented to Mr. Hubbard for payment—is he to pay it? Also encloses returns.

Vol. ix, No. 70.

1780.—*February 24. Hartford.*—Enclosing Col. Moylan's and Col. Sheldon's returns for accoutrements and repairs for their regiments. Mentions articles he is unable to furnish. Col. Webb desires to have forwarded to Morristown a pipe of wine and some loaf-sugar, for himself and Gen. Greene; roads almost impassable, but will send them forward soon by some trusty person. Blank certificates not yet arrived. Uncertainty of the post.

Vol. i, No. 39.

1780.—*February 29. Hartford.*—Wrote him on the 24th inst., enclosing a copy of certain returns. Hears through Major Talmage that a large quantity of horse furniture is at Springfield, which could be obtained on order. Obstacles in the way of obtaining carts. Terms on which he has engaged the teams. Debt Capt. Starr wishes to pay to an express-rider.

Vol. i, No. 38.

HUGHES, J.:

1780.—*February 3.*—Has engaged a number of teams. Desires Gen. Greene's orders as to their rations, as he does not consider the recommendations or orders of Mr. Lewis binding on him, the brigade, or any part thereof.

Vol. i, No. 42.

HUMPHREYS, WHITEHEAD:

1779.—*January 20.*—Stating the terms on which he would make axes for use of the army.

Vol. viii, No. 63.

HUNTER, MTN.:

1778.—*August 20. Warwick.*—Concerning a verbal order given some time before by Gen. Greene to supply a certain Mr.

HUNTER, MTN. (*continued*):

Counter with three horses, a saddle and bridle. Col. Hay will not replace them without a written order from Gen. Greene. Vol. x, No. 10.

HUNTINGDON, SAMUEL (Pres't of Congress):

1779.—*November 13. Philadelphia.*—Enclosing Act of Congress of the 12th inst. respecting the rank of certain men in the army. Vol. ix, No. 71.

1779.—*November 19. Philadelphia.*—Enclosing three Acts of Congress for reforming and incorporating the eleven companies of artificers and making further provision for them as specified in the several acts. Capt. Pendleton's faithfulness in this business and his subsequent sickness. Vol. i, No. 43.

1780.—*January 8. Philadelphia.*—Enclosing Act of Congress, directing payment to be made by the Quartermaster-General or his deputy for horses killed in battle, belonging to officers whose duty it is to be on horseback. Vol. i, No. 44.

1780.—*January 14. Philadelphia.*—Enclosing Act of Congress of 11th inst. with directions concerning the accounts of supplies to be furnished the troops of the convention of Saratoga. Vol. viii, No. 65.

IRVINE, WILLIAM:

1780.—*January 31. Camp near Morristown.*—Congratulating Mrs. Greene and the General, and wishing them joy. Has written the State Commissary to send all the soap he can spare. Vol. i, No. 49.

JAMISON, ADAM:

1779.—*May 15. Middlebrook.*—Has requested a Court of Inquiry that the accusations of one Geo. Hook, wagoner, against himself may be disproved. Vol. vii, No. 97.

1779.—*May 21. Camp, Middlebrook.*—Enclosing the sentence of the Court of Inquiry, which he trusts will give Gen. Greene full satisfaction. Vol. v, No. 51.

JAY, JAMES (Sir):

1779.—*November 5. Fishkill.*—Concerning a horse which he bought from Col. Hay, who some time after, told him that he

JAY, JAMES (Sir) (*continued*):

never rode him thirty miles without his falling lame. Considered it a joke, having several times ridden him more than that without the least injury. Has kept the horse so far in reserve for Gen. Greene, but he is perfectly free to take or leave him after consulting with Col. Hay. Vol. i, No. 48.

JAY, JOHN (Pres't of Congress, Dec. 1778–Sept. 1779):

1779.—*January 22. Philadelphia.*—Acknowledging letter of 18th inst. and promising to transmit the determination of Congress on the subject. Vol. i, No. 47.

1779.—*February 1. Philadelphia.*—Enclosing copy of Act of Congress directing the payment of sundry amounts to the inhabitants of New York, for provisions supplied and services performed immediately after the loss of Fort Montgomery. Execution of this act to be carried out at once, the sums having been due over a year. Vol. i, No. 46.

1779.—*May 19. Philadelphia.*—Transmitting him a copy of an Act of Congress of the 11th inst., making further provision for officers in Gen. Greene's department. Vol. v, No. 27.

1779.—*May 20. Philadelphia.*—Introducing Lieut.-Col. Morris, who, having left Gen. Sullivan's family, desires a place in Gen. Greene's. Vol. v, No. 38.

JOHNSTON, FRANCIS:

1779.—*December 8. Cross Roads, Chester Co.*—Introducing Major Dick to his particular notice, and requesting as a personal favor that he may be given the late Colonial Sheriff's place in the county of Chester. Vol. i, No. 45.

JOHNSTON, JAMES, and HOWELL, JOSEPH:

1779.—*May 24. Auditor's Office.*—Asking that the proper orders be given for forwarding a box of warrants. Vol. vi, No. 7.

JOYCE, WILLIAM:

1778.—*November 9. Middletown.*—Acknowledging favor of 6th inst. Has half promised his services to a privateer bark sailing the latter end of the month; will get three shares of the profits. However, will leave the privateer and undertake with Gen. Greene if he will pay a certain price. Vol. x, No. 51.

KEMPER, DANIEL :

- 1779.—*May 26.*—Asking for teams in which to send the clothing to Gen. Sullivan's troops, according to His Excellency's directions. Vol. v, No. 76.

KINGSLAND, ELIZA :

- 1779.—*October 4. Albany.*—A pathetic letter, setting forth various incidents of her life and beseeching that her husband may not be recalled to his regiment, as his work is the only thing which supports herself and her three little children ; to follow a camp is far worse than death to her. Vol. ii, No. 74.

KNOX, HENRY (Brig.-Gen. of Artillery) :

- 1778.—*November 20. Camp, Fredericksburg.*—Begging him to give directions to his deputy at Springfield to pay for such lumber and coal as may be wanted for the use of the ordnance mills at that place. Vol. i, No. 52.

- 1779.—*February 25. Pluckemin.*—Promising to send all tent-makers to Morristown. Mrs. Knox and the young ladies send their compliments to Mrs. Greene and the ladies.

Vol. i, No. 54.

- 1779.—*November 13. West Point.*—The desire of His Excellency that the preparations of the five ships at New London shall be stopped. Mentions the matter so that he (Knox) may send such orders to Mr. Hubbard as he thinks proper. Asks for news of winter quarters. Vol. i, No. 53.

• KOSCIUSKO, THADDEUS (Col.) :

- 1780.—*January 29.*—Recommending certain workmen as the most active and honest, and therefore entitled to have the preference in the new arrangement. Has sent the Commander-in-chief the plans of Fort Putnam ; desires his opinion.

Vol. i, No. 55.

LAWRENCE, JOHN (Judge) :

- 1780.—*February 26. Morristown.*—Enclosing a summons for Mr. Clarke to attend a general court-martial on Monday next at Morristown, on the case of Col. Howard.

Vol. i, No. 56.

LEWIS, JOSEPH :

- 1779.—*October 7. Morristown.*—About forty horses in his district ; not possible to recruit them fast enough to keep up the

LEWIS, JOSEPH (*continued*):

almost hourly exchange of horses at his post. Abuse of horse-flesh by the expresses, hired at Philadelphia; better for the Continent to pay each express \$40.00 per day and let him keep his own horse. Court of Inquiry still sitting; not yet finished examining the evidences against him [Lewis].

Vol. iii, No. 82.

1779.—*December 7*.—Good saw-mill standing still for want of a saw; can Col. Abeel spare one? Vol. viii, No. 64.

1779.—*December 13*. *Morristown*.—Wishes to have Gen. Greene's orders for the number of boards to be furnished each brigade.

Vol. ix, No. 74.

1780.—*February 27*.—In want of an express to go to Elizabethtown and Newark on business, by request of Col. Furman; would like him therefore to send one to his office.

Vol. i, No. 58.

1780.—*February 28*. *Morristown*.—Question of the proper pay of a two-horse team per day. Wishes his directions on that point, and also on whether it is proper for him to settle their certificates.

Vol. i, No. 59.

1780.—*February 29*. *Morristown*.—Enclosing an estimate of expenses incurred in employing the civil authority of Morris county, and also in the Staten Island expedition.

Vol. i, No. 57.

LEWIS, MORGAN (Col.):

1778.—*November 8*. *Albany*.—Question of procuring boards and planks. Places before him the case of a Mr. Smith, whose house has been so long needed as a station by American troops that he has lost the income of a year's produce; wishes to know what compensation should be made him. Encloses return of articles at his post.

Vol. i, No. 63.

1778.—*November 9*. *Albany*.—Unpardonable delay of Gen. Greene's expresses. Number and condition of the bateaux at hand. Will want to employ at least one company of bateaux men during the coming winter; discusses means of providing them with clothes, as they are literally naked. Money nearly expended; would like about \$30,000; in case of the arrival of troops, has barracks in Albany for 440 men and at Schenectady and Saratoga for as many more.

Vol. i, No. 61.

LEWIS, MORGAN (Col.) (*continued*):

1779.—*February 12. Albany.*—Acknowledging favors of 19th, 20th and 26th ult. Large preparations in his department rendered unnecessary by Gen. Schuyler's instructions. Difficulty of getting forage. Officers' horses consume too much. The few tools received so far from Springfield, very ill made and inadequate for the work. Wages of shipwrights. Inducements necessary to obtain bateaux men. If his assistants' wages are not raised they will quit. Principal articles needed. Enclosing returns for the last month.

Vol. iv, Nos. 66 and 65.

1779.—*May 5. Albany.*—Acknowledging favor of the 15th ult. Prepared at all points for the expedition in his quarter; troops will march on the following Monday. Pestered for cash.

Vol. vii, No. 35.

1779.—*October 6. Albany.*—Acknowledging the receipt of \$200,000, which is only enough to pay for money borrowed. Under the necessity therefore of sending Mr. Vosborough for a further immediate supply, as he cannot possibly purchase upon credit. If \$500,000 is sent, imagines that will be sufficient till the following spring. Question of clothes; poorly made in Philadelphia, and very dear, one suit of them amounting to one-third of a bateaux man's yearly pay.

Vol. i, No. 64.

1779.—*October 7. Albany.*—Acknowledging favor of 4th inst. Has sent to Fishkill sixteen bateaux and will send forty more in the course of a fortnight. Boats from Mohock river will also be sent to Fishkill. Every carpenter busy working on boats. Sends Col. Hay all the boards he can spare. Amount of oakum being sent to Fishkill. Will use every exertion to regain possession of his native city.

Vol. iii, No. 83.

1779.—*October 11. Albany.*—In a few days will have every board which the country can afford. Desires any vessels which Col. Hay can spare. In the event of regaining possession of New York, would be glad of the position there of deputy quartermaster. Not a tent in the department.

Vol. i, No. 60.

1779.—*October 22. Albany.*—Acknowledging favors of 17th inst. The paper which Gen. Greene desires is not in his possession. Declines to mention the terms of his future services, being

LEWIS, MORGAN (Col.) (*continued*):

persuaded that his former letter on that subject was not agreeable. Thinks, however, that the business of his department has been transacted at a much cheaper rate than any other; can prove this. Quartermaster-General's appointment not a profitable one in his district. Various supplies of boats and their materials sent to Col. Hay; building six bateaux daily.

Vol. iii, No. 84.

- 1779.—*November 11. Albany.*—Transmitting returns. Asking him to forward the Treasurer's letter and procure him an order for the money, as he is distressed for want of cash. Will attend to his orders respecting grain and tar.

Vol. ix, No. 72.

- 1779.—*November 21. Albany.*—Asking for an order on the Board of War for 1000 green hides, as leather is necessary and scarce. Must have money or all business will come to a standstill.

Vol. ix, No. 73.

- 1780.—*February 4. Albany.*—Acknowledging letter of 19th ult. Promises to adopt the mode he prescribes for acquiring an exact account of moneys due from the department. Has mentioned it already to some of his creditors in the city; they declined to accept of any certificate in lieu of money, even threatening a prosecution. People distressed for money to pay their taxes; and those living at a distance will certainly not bring in their accounts to receive only a promise of payment. Those driven from their habitations in 1777, demand payment for boards, etc., taken from them on the retreat. His assistants dissatisfied, and properly so, with their payment; they will leave unless something is done. Desires to know the truth of a report that a Resolution of Congress allows the staff clothing. Complains bitterly against the rate at which he has been taxed, as he has no visible property on earth and has been taxed merely for doing Gen. Greene's business.

Vol. i, No. 62.

LIND, ARTHUR:

- 1779.—*May 12.*—Ordered by Col. Heth to proceed immediately to Pompton for his baggage; applies for a horse to go on the above business.

Vol. vii, No. 78.

- 1779.—*May 12.*—Also asks for sufficient power to impress a wagon at Pompton.

Vol. vii, No. 78a.

LIVINGSTON, ABRAHAM (Capt.):

1779.—*February 10. Charleston, S. C.*—Acknowledging favor of 5th ult. covering an order of Congress for the procuration of a quantity of rough rice and vessels for the transportation thereof. Will proceed to the purchase at the proper time, but must have a supply of money. Vol. i, No. 66.

Duplicate of above. Vol. ix, No. 75.

1779.—*February 11. Charleston.*—Is in treaty for the chartering of two ships and a brig. Expenses incidental thereto.

Vol. ix, No. 75a.

1779.—*February 27. Charleston.*—Acknowledging letter of 29th ult. Number of ships engaged. Depends on Gen. Greene's generosity to prevent his being involved in difficulties, by furnishing him immediately with a sufficient sum of money.

Vol. ix, No. 75b.

1780.—*January 26. Charleston*—Acknowledging letter of August 31 covering an award respecting the brigantine *Sally*. The vessel, after lying the whole summer as a prison-ship, has been returned in a shocking condition. Will cost a large sum of money, even fitting her out in the most frugal manner. State of his health makes him desirous of closing his public transactions, and therefore requests Gen. Greene to appoint some other person in his place.

Vol. ii, No. 67.

LIVINGSTON, WILLIAM (Col.):

1778.—*November 5. Philadelphia.*—Acknowledging favor of October 21, and congratulating him on the latest addition to his family. The extravagance of Philadelphia. Suggests a loan from some foreign power to raise the credit of the money. Enemy relying on our money losing its credit. Policy of New Jersey exceedingly corrupt. Mentions the address of the Assembly to the Governor of New York as a serious matter to the country. Necessity of the States confederating. The conduct of Congress. A shocking spectacle of corruption and deception. Surprised at the conduct of Massachusetts in returning the same members; dangerous trusting the same people too long. Refers him to Gen. Wadsworth for the history of the times. Quotes Lee as speaking loudly against His Excellency, saying he is an old woman, has no stability, etc.

LIVINGSTON, WILLIAM (Col.) (*continued*):

P. S.—*November 8.* A report that Jamaica is taken.

Vol. i, No. 65.

1779.—*February 14. Beverwyck.*—Acknowledging favor of 9th inst. Happy to hear of his safe arrival in camp. Has enjoyed the possession of his quarters twice in his absence. Asks him to inform Col. Wadsworth that his presence will be absolutely necessary at camp on the 17th about 7 o'clock in the evening.

Vol. iv, No. 67.

1779.—*February 17. Morristown.*—Acknowledging favor of 14th inst. with the enclosures. Sorry to hear that any magistrate should furnish matter of complaint either for delinquency in duty or excess of authority. Not sure that he has any particular authority to exercise over them, but will lay the papers before the Privy Council.

Vol. i, No. 68.

LODGE, BENJAMIN:

1779.—*November 28. Bullion's Tavern.*—Report of the ridge between Baskinridge and Capt. Dennis'. Thinks it worth the General's while to view it.

Vol. ix, No. 76.

Draft of different positions surveyed by Benjamin Lodge.

Vol. ix, No. 77.

1779.—*November 28. Bullion's Tavern.*—Has made a survey of the different positions and encloses the drafts.

Vol. ix, No. 77a.

LOTT, ABRAHAM:

1778.—*December 23. Beverwyck.*—Mentioning the loss of his little grandson (Col. Livingston's son) after a lingering illness. Intends, as soon as his gout is better, to pay his respects to Gen. Greene on an affair of great importance. Gives reasons for thinking enemy will not evacuate New York; present meeting of Parliament likely to end all conjectures on that point.

Vol. i, No. 69.

1779.—*February 14. Beverwyck.*—Acknowledging favor of the 9th inst. and taking a mournful view of the country's condition. Economy and frugality replaced by extravagance, luxury and venality. Very much alarmed at the present situation of affairs. When he has strength to travel, will wait upon him.

Vol. iv, No. 68.

LOTT, ABRAHAM (*continued*):

- 1779.—*May 24. Beverwyck.*—Acknowledging favor of same date. Assuring him how happy they will be to receive Mrs. Greene and Mrs. Washington with such friends as may accompany them. Monstrous cruelty of the enemy to the southward bespeaks desperation. Solemn declaration of Congress to resent such treatment. Vol. vi, No. 4.

LOXLEY, ABRAHAM:

- 1779.—*May 29. Middlebrook.*—Applying for a vacant berth in Gen. Greene's department and stating his former services in the cause of America. Vol. v, No. 94.

MCDUGAL, ALEXANDER (Gen.):

- 1779.—*March 24. Headquarters, Peekskill.*—Acknowledging favor of 11th ult. Grand Army left everything in chaos. Gen. Greene's department in the best state. Detention of intrenching tools. Dissipation and luxury in Philadelphia; its consequences. Congress of New York aim to do everything with small results. Works at West Point retarded for want of carpenters. Hard worked; leads Spartan life. Affairs in Georgia cannot prosper until people recover from their panic. Wants to know what Congress is doing with Gen. Arnold. Alliance with France. Expectations not sanguine from that quarter; America must, under God, rely on herself; she must pay her own debts and restore her currency. Vol. viii, No. 66.

McHENRY, DR. JAMES:

- 1778.—*November 8. Headquarters.*—Desiring him to notify the gentleman whom he may have chosen for Quartermaster that he is to march with Col. Bland and continue with the Convention troops till they arrive at Charlottesville. Asking him to communicate the gentleman's name, when he will be ready, and where he may be found. Vol. i, No. 75.
- 1779.—*November 14. Headquarters.*—The bearer, Mr. Kain, having been restricted by His Excellency since his coming out of New York, has now permission to go to Philadelphia. Desires the General to aid him in procuring a horse. Vol. i, No. 74.
- 1780.—*January 15.*—Begging him to furnish the bearer, Major Frank's servant, with a public horse to ride as far as Basken-

McHENRY, DR. JAMES (*continued*):

ridge on behalf of Lady Stirling, who is anxious to learn what has become of the Earl. Vol. i, No. 90.

MANLEY, JOHN:

May 20. Providence.—Asking him, on behalf of Mr. Tillinghast, to forward the amount of a certain draft to Providence. Vol. v, No. 36.

MAXWELL, WILLIAM (Gen.):

1779.—*May 6. Elizabethtown.*—Ordered by His Excellency to be ready to march. Begs him to order every necessary provided, so that he may comply with His Excellency's command. Vol. vii, No. 37.

1779.—*November 12. Scotch Plains.*—Begging him to confirm the appointments of Lieut. Blair and Lieut. Appleton, and if a wagonmaster be appointed to the brigade, to give the place to Sergt. Landers. Vol. i, No. 72.

1779.—*December 24. Mendum.*—Refusing to give up his rightful quarters to Col. Butler and Maj. Church, whose conduct has been so void of complaisance both to himself and to his Brigade Quartermaster. Vol. i, No. 73.

MEADE, COL. RICHARD K. (A. D. C. to Gen. Washington):

1779.—*October 17. Headquarters.*—Delay in the express riders from Philadelphia, and especially in the one who came the night before, induces the General to request that he be called to account. Desires riders to be stationed between these quarters and Philadelphia, to be continued while a prospect of corresponding with the Count remains. Vol. i, No. 92.

1779.—*October 28. Headquarters.*—His Excellency desires Gen. Greene to accommodate Gen. Schuyler with two good horses. Vol. viii, No. 67.

MELCHER, ISAAC:

1779.—*January 25. Philadelphia.*—Enclosing orders received from the Board of War as well as instructions given by him to those employed in his department. Repeats, to prevent future misunderstandings, his duties as Barrackmaster-General. Thinks the strictest harmony ought to exist between Gen. Greene's department and his own. Vol. i, No. 93.

MENZIES, THOMAS:

- 1779.—*January 16. Fredericksburg.*—Setting forth the amount of fencing, rails and green timber destroyed on his farm by Gen. Wayne's division, Col. Clark's and Nixon's brigades. Sends the appraisement by the bearer, not doubting that the General will think it just to pay it. Vol. i, No. 95.

MILLER and TRACY:

- 1779.—*February 6. Boston.*—Acknowledging favor of 28th ult. Mr. Otis endeavoring to procure the vessels required. If he should fail, they stand ready to make up the deficiency. Vol. viii, No. 68.

MITCHELL, JOHN (Col.):

- 1779.—*February 17. Philadelphia.*—Acknowledging his favors of 15th inst. Assuring him of the pleasure he and Mrs. Mitchell had in contributing in any way to his and Mrs. Greene's amusement while in Philadelphia. Sorry not to be at camp at the exhibition; impossible to be absent from his office.

Vol. iv, No. 69.

- 1779.—*May 6. Philadelphia.*—Acknowledging favor of 2d inst. Business of making and forwarding tents. Making every exertion to procure wagoners. Vol. vii, No. 36.

- 1779.—*May 9. Philadelphia.*—Acknowledging favor of 7th inst. If possible to procure the linen, will send it off to Col. Hooper. Will attend to other orders also. Vol. vii, No. 51.

- 1779.—*May 10. Philadelphia.*—Detailing the articles sent to Cols. Maxwell, Hooper and Spencer. Number of teams he will be able to send. Wishes to know destination of Capt. Sadler's company of artificers. Vol. vii, No. 52.

- 1779.—*May 14. Philadelphia.*—Enclosing copy of letter from Gov. Johnson, of Maryland. Thinks it unlikely that the enemy intend to come into the bay. Articles sent to Col. Hooper.

Vol. vii, No. 96.

- 1779.—*May 15. Philadelphia.*—Acknowledging favor of 12th inst. Work of making tents going forward briskly. Board decided the matter of the linen in favor of the agent clothier. Number of articles on hand and those forwarded. Question of pack-saddles. Extremely difficult to get wagoners. No doubt enemy's fleet has gone to the southward. Wages of expresses. Their hard duties. Vol. vii, No. 99.

MITCHELL, JOHN (Col.) (*continued*):

1779.—*May 16. Philadelphia.*—Enclosing copy of a letter received from Col. Davis from Carlisle, concerning pack-saddles. Not one of the wagons engaged by Mr. Patton to convey stores to Easterton has yet come. His Excellency's wagons will set out for camp on Tuesday. Vol. v, No. 1.

1779.—*May 19. Philadelphia.*—Enclosing copy of Mr. Wade's letter to him. Lieut.-Col. Wallace goes off before night with 1000 stand of arms to Virginia, by sea, if safe; if not, by land. Vol. v, No. 32.

1779.—*May 23. Philadelphia.*—Acknowledging favor of 19th inst. Concerning the construction and destination of the pack-saddles. Col. Clayborne's habit of finding fault with everything. Every exertion being made to complete tents. Price of duck enormous. Terrible depreciation of money. Will apply to Board of War for necessary articles of clothing, though he believes it to be in vain. Trouble of procuring carters. Small matters of wages, saddle, carriage, etc. Enemy have burned Portsmouth and it is believed Suffolk and Hampton; they mean to destroy Annapolis and Baltimore, if possible. List enclosed of articles wanted immediately to enable them to take the field. Vol. v, No. 66.

1779.—*October 10. Philadelphia.*—No further verified accounts of Count d'Estaing and his fleet, but report says that he has effectually done the business at Georgia. Number of tents ready to send on; unable to keep workmen supplied with canvas, which is extravagantly dear, £220 per bolt. Enclosing returns for September. People employed cannot live on their pay. The assistants complain that they are not put on a footing with Col. Flour's men and officers, who are allowed clothing; cannot purchase clothing out of their pay. Blankets cannot be got. Proper to have a person at North Wales or near it; compliment of naming the man will be paid to the President, who is much indisposed from fatigue of body and mind, due to the unfortunate disputes in Philadelphia.

Vol. iii, No. 85.

1779.—*November 14. Philadelphia.*—Enclosing returns. Number of tents sent on and those at hand. Concerning the purchase of blankets and other articles. Disagreeable and distressing

MITCHELL, JOHN (Col.) (*continued*):

situation he is in for lack of money. The credit and reputation of the department at stake; if their credit is once lost, no more business can be done. Will make every exertion in his power, and will cheerfully take his full burden of duties in the service of his country. Vol. ix, No. 79.

- 1779.—*November 22. Philadelphia.*—The bearer is Capt. Pendleton, who has been sick; has been obliged to advance him a considerable sum. Doubtful how long the preparations for the ensuing campaign can continue without a supply of money. The forwarding of stores. Wages of express-riders, artificers, etc., inadequate; this matter has been laid before Congress. Disposition of Capt. Sadler's company. Has sent Mrs. Greene one loaf fine sugar and two pounds green tea. Asking him to include certain others in the resolve of Congress respecting the artificers. Vol. ix, No. 80.

- 1779.—*November 27. Philadelphia.*—Concerning certain small debts. Hopes the intended regulations of Congress will be honorable for the department and advantageous for the public. As for himself, will freely serve his country without fee or reward except his expenses. Account of an engagement in the English Channel between the combined fleets and the British, in which the latter lost five ships. Vol. ix, No. 81.

- 1779.—*November 28.*—Further intelligence of the engagement in the Channel not so clear; no more than a probability that it took place. Vol. ix, No. 82.

- 1780.—*January 14. Philadelphia.*—Acknowledging favor of 10th inst. Expected to set out that morning, but his negro man let a log of wood fall on his leg, bruising and cutting it; will therefore reach Gen. Greene Sunday evening or Monday morning. Virginia troops marched on the 13th. Owing to depth of snow, many of the horses have given up; some must be purchased, but where to get the money? Great need of cash. Vol. i, No. 98.

- 1780.—*February 17. Philadelphia.*—Acknowledging Gen. Greene's most polite and friendly reception of him during his stay at his house. Sends him by bearer the returns for December and January and the certificates for the Eastern deputies. Congratulating him and Mrs. Greene on the birth

MITCHELL, JOHN (Col.) (*continued*):

of a child. Merchants will not sell sail-duck of any kind unless for ready money. Want of cash a terrible obstacle. Great depreciation of money. Begs his advice and assistance. Sends him pair of gloves; if he could have gotten new ones would have sent them. Hoped Mrs. Greene liked the tea cups.

Vol. i, No. 99.

MORGAN, GEORGE (Col.):

1779.—*May 2. Princeton.*—Sent Capt. Clinton \$3000 to complete the work of opening the road from Turkeyfoot to Fort Pitt. Asks him to transmit an order for the sum expended. In spite of delays of the Treasury, has made an ample provision in the commissary department. The principal Delaware chiefs on their way to Philadelphia; has directed them to proceed at once to headquarters, that His Excellency may be informed of their disposition and intentions; will detain them a day or two to repose themselves, and will write down everything they have to communicate, in order to save His Excellency trouble; wishes they could be paid some compliment on their approach to headquarters. Vol. vii, No. 20.

MORGAN, JACOB:

1779.—*May 7. Reading.*—Acknowledging favor of 30th ult. In hopes of getting a number of wagoners. At a loss what to do for forage; has just offered \$20.00 a bushel. Question of hiring laborers as drivers. Vol. vii, No. 44.

1779.—*May 7. Reading.*—Same as letter No. 44 in Vol. vii, with the exception of a postscript relative to the return of stores for the month of March. Vol. vii, No. 45.

1779.—*May 28. Reading.*—Account of horses and teams furnished to Col. Cox and those ready to start. Stores to be sent.

Vol. v, No. 87.

1779.—*May 29. Reading.*—Report of the wagons and horses in his brigade. Vol. v, No. 93.

1779.—*October 9. Reading.*—Sends by bearer eleven good teams, laden with fifty-five barrels of flour. Impossible to enlist carters except by the day, at \$10.00 per day. Wagons Col. Cox ordered almost ready. Axes and camp kettles on hand.

Vol. i, No. 102.

MORGAN, JACOB (*continued*):

1780.—*January 29. Reading.*—Being a calculation of debts due on account of the quartermaster and forage departments, but not absolutely exact, as there are some accounts against the department not yet found. Vol. i, No. 104.

1780.—*February 4. Reading.*—Acknowledging favor of the 19th and observing by it that accounts of outstanding debts are to be rendered by March 1. Will do his best, but owing to the snow thinks it unlikely he can collect the whole by that time. Vol. i, No. 103.

MORGAN, JOHN (Dr.):

1780.—*January 30. Philadelphia.*—Asking his assistance in procuring him quarters for attending the court-martial at Dr. Shippen's approaching trial. Presumes to trouble Gen. Greene with this application on account of politeness shown him by the General when last in camp. Vol. i, No. 101.

MORRIS, GOUVERNEUR:

1779.—*May 19. Philadelphia.*—Asking that, if it is proper and convenient, his nephew, Lewis Morris, may be taken into Gen. Greene's family as a volunteer aide. Vol. v, No. 29.

MOYLAN, JOHN:

1779.—*November 11. Newburgh.*—Desiring him to send a receipt, endorsed, for a hat which will be delivered by bearer. Vol. i, No. 105.

MOYLAN, STEPHEN (Lieut.-Col.):

1779.—*November 5. North Castle.*—If Mr. Bennett, bearer of this, fails to get money from Col. Bostick to pay for the forage for the Light Dragoons, he begs Gen. Greene to supply him with \$20,000, as his honor is engaged that the inhabitants shall be duly paid for their forage. Vol. i, No. 106.

MUHLENBERG, PETER (Gen.):

1779.—*May 11.*—Asking that the bearer, James Dunn, a rope-maker, may be given work in Gen. Greene's department. Vol. vii, No. 67.

MURFREE, HARDY (Maj.):

1779.—*February 27. Paramus.*—Asking permission to purchase a horse belonging to the public. Vol. i, No. 111.

MURRAY, JOHN :

- 1779.—*May 11. Boston.*—Begging him to forward to Capt. Sargent certain letters from his family. Hopes to see him before summer is over. Vol. vii, No. 75.

OLNEY, GEORGE :

- 1779.—*January 2. Providence.*—Stating the salary which he will accept as Auditor of Accounts, to live in Gen. Greene's family and have equal privileges with the other officers in the department. Vol. i, No. 113.
- 1779.—*May 31. Providence.*—Made application to Col. Angell to obtain permission for Capt. Littlefield to go and live with Gen. Greene during the present campaign. Account of his journey after leaving camp and his meeting with Mrs. Olney. Report that a French fleet will arrive in three weeks. Another expedition in preparation against Rhode Island.

Vol. vi, No. 19.

OTIS, SAMUEL A. :

- 1779.—*January 10. Boston.*—Informing him of the death of his friend and partner, Mr. Andrews, who was shot by the accidental discharge of a pistol. Loss to the community. Will execute the business now devolving upon him in the best manner possible. Vol. i, No. 108.
- Copy of above letter. Vol. ix, No. 85.
- 1779.—*January 14. Boston.*—Acknowledging favor of 20th ult. Concerning the purchase of duck and other articles. Everything intolerably dear and also upon the rise. Makes certain suggestions for procuring supplies. Vol. ix, No. 85a.
- 1779.—*January 18. Boston.*—Has taken upon himself to execute the orders contained in Gen. Greene's letter of the 5th to his deceased friend. Can procure no vessels upon the terms offered by Congress. Mr. Lewis presses hard for a supply of money. Vol. viii, No. 75.
- 1779.—*February 3. Boston.*—Impossible to get the rice freighted unless Gen. Greene will give one-half or one-third and insure. Has made considerable purchases, in which he must have immediate monetary assistance. Vol. ix, No. 86.
- 1779.—*February 6. Boston.*—Setting forth what he has done as regards procuring vessels. Credit and cash both gone at

OTIS, SAMUEL A. (*continued*):

present. Owners of vessels not opulent, so that cash must be advanced to get them to sea; also to get a supply of duck. Sends two silver cups by bearer, which Mr. Andrews bespoke before his death. Has lost within a few weeks his father, friend and wife. Advises putting a few stores on each vessel.

Vol. iv, No. 74.

1779.—*February 10. Boston.*—Acknowledging receipt of \$44,000 by Adams. Names of vessels, time of sailing and terms on which they are hired. Loss of money if they are detained.

Vol. iv, No. 73.

1779.—*February 11. Boston.*—Exact copy of preceding letter.

Vol. iv, No. 72.

1779.—*February 11. Boston.*—Question of insuring the vessels hired. Marine Board has given Major Chase all the duck they can spare upon his application in Gen. Greene's name, leaving none for him [Otis]. Enclosing list of vessels.

Vol. iv, No. 71.

1779.—*May 17. Boston.*—Announcing the arrival of various vessels with rice. Continued demands on him will render his situation very uncomfortable without Gen. Greene's attention.

Vol. v, No. 4.

1779.—*May 17.*—Announcing arrival of the brigantine Laurana with supply of rice. Mr. Livingston drawing upon him for certain expenses. [On back of MSS.] A bill of Otis & Henley's.

Vol. v, No. 5.

1779.—*May 21. Boston.*—Sending him two of the best pipes of wine he could meet with; the article scarce and dear.

Postscript.—Stating the estimate relative to the rice. Wishes the escorts might be enjoined secrecy; every sum brought forward is magnified to millions. A fine prize brought in of 150 pipes of wine.

Vol. v, No. 53.

1779.—*May 22. Boston.*—Capt. Collier's arrival with about 200 casks of rice, having encountered no setbacks. Will endeavor to negotiate some bills, but hopes that will not prevent his sending some cash. Mr. Livingston had no reason to complain; he had letters of advice sufficient to point out his duty,

OTIS, SAMUEL A. (*continued*):

namely, to load the vessels with rice. Will exhibit his contracts to Gen. Greene and to Mr. Livingston if required.

Vol. v, No. 58.

OTIS & HENLEY :

- 1779.—*May 10. Boston.*—Enclosing copy of protest of the captain of the *Friendship*, which was taken up as a transport for rice and sustained certain damages. The *Friendship* appraised by indifferent men at £4500. Vol. vii, No. 64.

A statement by Robert Craige, captain of the *Friendship*, sworn to before a Notary Public, protesting against the seizure and loss of his vessel by the ship *Unicorn*. Vol. vii, No. 64a.

- 1779.—*May 12. Boston.*—Announcing the arrival of Capt. Bunker in port with 358 casks of rice. Six vessels laden likewise, sailed with him, some of which may be hourly expected. Asks for his immediate support to pay the freight. Having no orders for the disposition of the rice, delivered the cargo to the issuing commissary. Vol. vii, No. 79.

- 1779.—*May 13. Boston.*—Informing him that certain casks were sent to Morgan Lewis by mistake instead of to Fishkill; therefore Col. Lewis must be held accountable.

Vol. vii, No. 92.

- 1779.—*May 31. Boston.*—Fifteen marquees ordered are in hand. Encloses return of their doings for month of May.

Vol. vi, No. 21.

- 1779.—*October 2. Boston.*—Question of purchasing duck for tents; very scarce and very dear. Recommends an application to the Commercial Committee. Vol. iii, No. 86.

- 1779.—*October 9. Boston.*—Assuring him that his requisition for tents and oakum shall be complied with as fast as possible. Congratulating him on Count d'Estaing's arrival.

Vol. iii, No. 93.

- 1779.—*October 11. Boston.*—Presenting certain bills for payment, the sum being \$100,000. Hopes this will not retard the supply of cash promised by escort. Vol. i, No. 109.

- 1779.—*October 13. Boston.*—Number of blankets and tents purchased. Could buy to more advantage had they earlier notice and, above all, a little cash. Vol. i, No. 107.

OTIS & HENLEY (*continued*):

- 1779.—*October 27. Boston.*—Acknowledging favor of 21st inst. Number of tents ready. Numerous creditors prevent further purchase. An order upon Nathaniel Appleton, Esq., might help the service. Vol. viii, No. 76.
- 1779.—*October 28. Boston.*—Enclosing invoice of twelve hogsheads of tents and three casks of nails, to be forwarded immediately. Vol. viii, No. 79.
- 1779.—*November 2. Boston.*—Enclosing Mr. Livingston's account. Vol. ix, No. 89.
- 1779.—*November 12. Boston.*—Has sent to Col. Smith at Springfield, to be forwarded to Gen. Greene, thirteen hogsheads of tents and two hogsheads of woollens. Vol. viii, No. 80.
- 1779.—*November 14. Boston.*—Acknowledging cash. Necessity of procuring materials for tents. Hon. Messrs. Adams and Dana sail that morning for France. Vol. viii, No. 81.
- 1779.—*November 17. Boston.*—Announcing the dispatch by Mr. King of casks of tents, etc. Vol. ix, No. 90.
- 1779.—*December 3. Boston.*—Enclosing invoice of tents and clothing, etc. Vol. i, No. 116.
- 1779.—*December 14. Boston.*—Sorry every letter groans for remittance, but it can't be helped. Question of tents. Requisition from His Excellency for 1000 to 1500 tents; order confused with his [Gen. Greene's], but no harm done. Vol. iii, No. 95.
- 1780.—*February 19. Boston.*—Has forwarded to Col. Smith two hogsheads of markees; encloses invoice. Vol. i, No. 115.

PAINE, NATHANIEL:

- 1780.—*February 8. Boston.*—Announcing a number of articles sent forward. Vol. i, No. 114.

PAINE, THOMAS:

- 1779.—*January 31.*—Has stayed at home to avoid being asked questions, but hearing of Gen. Greene's expected departure, must break his reserve by calling upon him that very day. Vol. ii, No. 9.

PAINTER, GAMALIEL:

- 1779.—*November 15. Fishkill.*—Asking that the bearer, Mr. Ezra Benedict, sergeant in his company of artificers, may get his
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PAINTER, GAMALIEL (*continued*):

discharge. Induced by the circumstances of his family to endorse his request. Vol. ix, No. 94.

PALFREY, WILLIAM:

- 1779.—*January 14*.—Apologizing for not writing sooner as he has been with his family in the country. Report which prevailed in Boston that Gen. Greene had been kidnapped by the Tories and carried prisoner to New York. Has just spent a fortnight with Gen. Hancock, who is sufficiently recovered from his attack of gout to attend the Assembly. Coolness between him and Gen. Gates; neither they nor their ladies visit. Gen. Gates' family involved in quarrels ever since their arrival. Mr. Bob Gates and Mr. Carter fought, but it was a bloodless encounter. Marquis on board the *Alliance* in Nantasket Road, waiting for a wind. Necessaries of life risen to a terrible pitch. Wishes a "Locke" or "Colbert" might start up and teach the art of finance. Intends to resign his commission, his family being large, his children young and needing his support. Speaks of the accidental shooting of Mr. Andrews. If necessary to appoint some other person as his agent in Boston, begs leave to offer his services. Remembrances to friends. Sends for his amusement the current prices of sundry articles in Boston. Vol. ii, No. 12.

PARSONS, SAMUEL H.:

- 1779.—*May 23*. *Reading*.—His brigade ready to march if only they can be supplied with tents and portmanteaus. Enemy's position somewhat altered; their forces chiefly posted at Kingsbridge, Horn's Hook and near Hallet's Cove, on Long Island; position of their boats. Asks if the late embarkation from New York is not designed for Virginia. Desires to know the situation of Burgoyne's troops. Vol. v, No. 67.
- 1779.—*May 24*. *Reading*.—His brigade totally without portmanteaus or tents. Begs they may be supplied at once. Number of wagons needed. Vol. vi, No. 3.

PATERSON, JOHN:

- 1779.—*November 15*.—Well acquainted with the circumstances of Mr. Benedict's family and therefore recommends his discharge, if it can be done without damage to the public. [Written on back of letter No. 94, Vol. ix.] Vol. ix, No. 94a.

PATTERSON, W. :

- 1779.—*February 14. Cumberland County.*—Acknowledging his favor per express that morning and will begin his journey the next day. His ill state of body will not admit much speed.

Vol. iv, No. 88.

- 1779.—*May 29. Philadelphia.*—Disposition made of saddle, bridle and horse. Asking that he may be allowed to keep two suits of Indian clothes for family use. Leaves it to Gen. Greene to settle what his services have been worth.

Vol. v, No. 96.

PATTON, ROBERT (Col.) :

- 1779.—*May 7. Lebanon.*—Concerning the stores to be forwarded up the Susquehanna. In a few days will send fifty teams to Philadelphia.

Vol. vii, No. 55.

- 1779.—*May 10. Easton.*—Acknowledging favor of 5th inst. Conductors and teamsters cannot be had under the price mentioned. Everything shall be done to Gen. Sullivan's satisfaction. Has good prospects of securing horses for Mrs. Greene and has *actually* secured for her thirty lb. butter.

Vol. vii, No. 56.

- 1780.—*January 19. Lebanon.*—Acknowledging favor of 2d inst. Encloses an order from Col. John Cox for sundries. If he has to procure horses will need at least £600,000. Question of returns. Has sent twenty-four horses out of his own teams to Col. Neville who was much distressed for them ; needs cash at once to replace them.

Vol. ii, No. 1.

- 1780.—*February 14. Lebanon.*—Acknowledging favor of 25th ult. and circular letter of 19th ult. According to request has sent his estimates of the cash he wants now and in the future. Has been obliged for some time to risk his credit by supplying the Virginia troops with horses on their way south, and unless soon supplied with cash his credit will fall to the ground.

Vol. ii, No. 6.

- 1780.—*February 27. Lebanon.*—Enclosing one of a book of certificates ; has settled with the greater part of his workmen. What records he makes when he gives a certificate. Books will be ready for settlement by the 10th of March. Impossible for him to set out for Philadelphia without cash ; prays him to write Col. Pettit to send some. Vol. ii, Nos. 4, 5.

PETERS, RICHARD :

- 1779.—*January 11. War Office.*—The opinion of the Board is that the Deputy Quartermaster-General of the department should reside at or near the barracks built for the troops of the Convention in Albemarle county, Va. Has informed the Barrackmaster-General that Gen. Greene's deputy will provide fuel and the commissary candles for the Convention troops.
Vol. ii, No. 8.

- 1779.—*October 21. War Office.*—Acknowledging favor of 10th inst. and the returns accompanying it. Asking to be kept more fully informed as to the stores received and issued by the Forage department.
Vol. ii, No. 7.

PETTIT, CHARLES (Col.):

- 1779.—*February 10. Philadelphia.*—Busy planning a route for the march of Pulaski's Legion from Philadelphia to Georgia. Constant calls on him for money, and not a shilling from the Treasury. Major Eyre has just called on him concerning the matter of taking charge of public ferries. Enclosing letter from Col. Hooper with an avowal in it of having paid £5 a day for teams. Necessity alone can justify such an extravagant advance. *February 11.*—Has written directing Mr. Hollingsworth to erect stores at the Head of Elk on the most economical plan. Wishing him to mention the particular sums he desires sent to Boston. Compliments to Mrs. Greene and Mrs. Washington.
Vol. iv, No. 83.
- 1779.—*February 15. Philadelphia.*—Acknowledging his favor of the 12th inst. Has at length obtained a warrant for \$1,500,000, but it is as yet intangible. Promises to send some when it materializes. Question of accounts. Asking him to state in writing the several matters the Board of War promised to report to Congress, that he may jog their memory. Necessity of a separate quartermaster for Gen. Pulaski. Secret intelligence of great importance received by Congress; many conjectures as to its nature; good effect on commerce. Enclosing letter of Mr. Hubbard. Questions the propriety of sending vessels to South Carolina. Received returns from Fishkill.
Vol. iv, No. 82.
- 1779.—*February 21. Philadelphia.*—Surrounded by demands for money, but will send Gen. Greene £77,000, also sums to Mr.

PETTIT, CHARLES (Col.) (*continued*):

Otis and Mr. Greene. Count Pulaski in town, waiting to settle his accounts; concluded to send the legion by way of Winchester. Question of procuring sail-duck, also pack-saddles. Enclosing rough drafts of several important matters. Relates the history of his late correspondence with Mr. Secretary Matlack over a matter of certificates and how he [Pettit] lost his temper. Mr. Calhoun's demand for money. Ill treatment of prisoners at Charlotteville. It being Sunday has leisure to write all this. Vol. iv, No. 75.

1779.—*February 22. Philadelphia.*—Enclosing a letter from Mr. Ross to Col. Cox. Arrival of Capt. Cunningham in 14 days from Martinique. Count d'Estaing lies in Port Royal, the British fleet being at present superior; but he expects further reinforcements. Vol. iv, No 76.

1779.—*February 25. Philadelphia.*—Concerning a visit he paid the Council at their earnest solicitation. Proposed charges against Gen. Arnold. Unfavorable attitude of the Council toward Mr. Mitchell; their expressions plainly indicated a prosecution. Later Mr. Mitchell received letter from the Council, notifying him that they intended to proceed against him on the resolution of Congress of February 9, 1778 (see Vol. x, No. 54), unless he should forthwith show cause to the contrary. Advice he gave Mr. Mitchell. Thinks Mr. M.'s conduct has been indiscreet but nothing more. The whole affair of a delicate and embarrassing nature.

Vol. x, No. 2.

1779.—*February 26. Philadelphia.*—Has forwarded to Col. Cox all the returns of a late date. Numerous duties which fall to him. Must obtain some assistance. Difficulties in obtaining sums of money from the Treasury. His ideas about collecting and sending in the vouchers. Johnson Smith's accounts. Mr. Mitchell's affair. An estimate of the expenses of the Quartermaster's department for an army of 6000 men for one year. *February 27.*—Just heard from Col. Cox of the enemy's being out; next account will be of their going in and then an embarkation. Must put off his trip to Trenton, as in the present crisis of affairs he is afraid to be a day absent.

Vol. ii, No. 13.

PETTIT, CHARLES (Col.) (*continued*):

- 1779.—*February 26. Philadelphia.*—Mr. Mitchell's difficulty with the Council about certain negotiations with Gen. Arnold. Mr. Mitchell's efforts to extricate himself only seem to plunge him into deeper distress; has begged him [Pettit] to soften his case before the Council. Wrote a private letter to the President on the subject, setting forth his belief that Mr. Mitchell may have been indiscreet but never fraudulent; the President's answer expressed a different opinion of his conduct. No hope, therefore, in that direction. *February 27.*—Mr. Mitchell has just left after expressing concern that the Council should suspect him of want of candor and offering to make an explicit declaration of the facts. Has just written a letter to the President in which he conveyed this declaration to the Council.

Vol. ii, No. 14.

- 1779.—*May 5. Philadelphia.*—Showing the various dispositions made of a million dollars suddenly received. Other clamorous calls for money. Business of detention of vessels in South Carolina. Plans for the erection of stores at the Head of Elk. Suggests advisability of waiting before taking the Forage department out of Mr. Hollingsworth's hands. Monstrous prices paid by Mr. Ross for teams and his reported incapacity. Small money matters.

Vol. vii, No. 34.

- 1779.—*May 7. Philadelphia.*—Cannot obtain cash as fast as it is needed. Has applied to the Board for five millions more, but has received no answer. Measures of Congress to restore credit of money so far ineffectual and likely never to succeed. Character of Mr. Steel; his fitness for his position. Dined with His Excellency the Minister of France at Col. Cox's. In consequence of Mr. Erskine's letter has purchased a reflecting telescope, which will forward immediately. The department injured by conduct of certain officers in Lancaster and Delaware. Fears concerning Col. Patton's character; for further information refers Gen. Greene to Gen. Smallwood's chaplain, Mr. Montgomery.

Vol. vii, No. 43.

- 1779.—*May 11. Philadelphia.*—Col. Steel in town with his accounts; will examine them in a day or two; at a loss how to break to him Gen. Greene's wish of dropping him; he is pressing for a sum of money to send to Fort Pitt. Will give

PETTIT, CHARLES (Col.) (*continued*):

Col. Hooper's demands the preference to all others, but when is uncertain, owing to depleted state of his coffers. Delay in getting the five millions he applied for. The Board of War in high dudgeon with Col. Wadsworth owing to a letter just received from him respecting the Commissary department, containing sentiments a benevolent mind would not harbor respecting any but a set of villains. Plans of Congress for the restoration of money. Settlement of his accounts.

Vol. vii, No. 67.

1779.—*May 13. Philadelphia.*—Summoned by Board of War and witnessed an altercation between Mr. Caldwell and Mr. Mitchell over a parcel of Brabant linen to which they both laid claim. The Board then asked in what manner and under what escorts the stores were to be forwarded from Estherton. Negotiations with the Treasury. Number of messengers waiting for money. Treasurer harassed and soured. Distressed for want of proper assistance in the matter of accounts. Wishes Col. Blodgett might be spared to him. Murmurs against Mr. Ross and Col. Patterson, both appointed by Col. Cox. Vol. vii, No. 90.

1779.—*May 19. Philadelphia.*—Enclosing a copy of Col. Hollingsworth's letter announcing the appearance of the enemy in the bay, the landing of three or four thousand men at Portsmouth on their march to Williamsburg, and fourteen sail lying under New Point Comfort. Explains away a certain phrase in his letter which Gen. Greene took offense at. Desires Mrs. Greene's instructions as to the locket. Hopes of getting money from the Treasury. Vol. v, No. 26.

1779.—*May 21. Philadelphia.*—Acknowledging favor of 19th inst. Misunderstanding about the application to the Council for wagons. The Council as susceptible of injury as a gouty foot. Scheme he entertains of reducing the number of Deputies in Pennsylvania; advantages of this arrangement. Amount of money he is disbursing. Enclosing Capt. Rice's letter; also a copy of one from Col. Finney, announcing the cutting off of thirty of the enemy on an excursion. Hints at two interesting anecdotes which he would tell if he had the time

Vol. v, No. 44.

PETTIT, CHARLES (Col.) (*continued*):

1779.—*May 23. Philadelphia.*—Copy of return of boats made by Major Eyre. Recommends letting the boats remain where they are. Vol. vi, No. 1.

1779.—*May 23. Philadelphia.*—Acknowledging favor of the 21st inst. Has sent for Major Eyre to get the necessary information about the boats. Negotiating with the Council about the authority to call out wagons. The Council's letter to Gen. Sullivan concerning M. H., whose business they think has been designedly neglected. Necessary to have some solid foundation for such an important act as the removal of a public officer. Referred Col. Mitchell to Gens. Greene and Cox for details of the business of providing tents. Heavy calls on him for money; alarmed lest his department should fall into disgrace for want of it. A printed handbill just distributed threatening vengeance on monopolizing speculators unless prices are reduced to the state of last Christmas. Gathering of a well-regulated mob; militia assembling on the commons. Depreciation of money; resolution of Congress to raise forty-five millions more by taxes. *Tuesday.*—Inhabitants to hold meeting at the State House at 4 o'clock to discuss present situation. Vol. v, No. 61.

1779.—*May 27. Philadelphia.*—Acknowledging favor of 25th inst. Question of transporting the stores. Boats will be all in order by the following week. Supply of tents. Distressed for money. Private conference with Governor Reed. Well-drawn petition, signed by a great number of citizens, with the Governor at the head, has been presented to Congress on the subject of money. Immediate attention paid to it. Vol. v, No. 84.

1779.—*October 15. Philadelphia.*—Account of an interview he had with the Board of Congress, during which he laid before them the situation of the Quartermaster's department and the probable consequences if they were not supplied with money. After much discussion, procured a warrant on the Loan Office for two millions, and one on the Loan Office in New Jersey for \$700,000 to help Mr. Furman. Col. Mitchell's application for teams to the Council. Sends, by Mr. Frame, \$171,000 for him, and the like sum for Col. Hay. Vol. iii, No. 97.

PETTIT, CHARLES (Col.) (*continued*):

1779.—*October 16. Philadelphia.*—Has sent \$171,000 for Gen. Greene, and a like sum for Col. Hay—all he can muster at present. Mr. Hubbard and Mr. Lewis will probably be relieved by the warrant on the Loan Office. Vol. iii, No. 96.

1779.—*October 22. Philadelphia.*—Difficulties as to money still continue. Concerning the locknet for Mrs. Mitchell. What has become of Count d'Estaing? Never sanguine about his expedition against New York; thinks the first news of him will come from West Indies. Militia preparing to start at the earliest notice of his approach, with the President of the State at their head. Vol. viii, No. 84.

1779.—*October 27. Philadelphia.*—Has heard by this time that Count d'Estaing was unexpectedly detained in Georgia; imagines it is too late for any operations against New York that season. Wages of ship carpenters. Left Col. Cox at Trenton. Demands increase faster than the supply of money. Vol. viii, No. 85.

1779.—*October 30. Philadelphia.*—Has paid Messrs. Otis & Henley's draft; money just dribbles in from Treasury. Sends him by a kind of stealth \$228,000. Other demands on him. Has asked Board of War for an immediate advance of \$3,000,000; need of constant applications. Rumor of a battle in the British Channel. Admiral Gambin in the *Ardent* sunk with colors flying; rest of British fleet scattered and taking shelter in different ports. Another reported rich prize sent in by Capt. Geddis. Nothing further heard of Count d'Estaing.

Vol. viii, No. 86.

1779.—*November 5. Philadelphia.*—No result of his application to the Treasury Board. Congress at present weak. Sketches the present situation of the department. Criticises the methods of the Treasury Board. *November 9.*—Has been busy finding a house. Treasury Board has promised to report a warrant for five millions; in the meantime numerous calls upon him must remain unanswered. His opinion respecting salary of officers. Advises Gen. Greene to write Congress on the subject of money, but recommends his adopting a moderate tone. Mr. Hewes' ill health. Vol. ix, No. 96.

PETTIT, CHARLES (Col.) (*continued*):

- 1779.—*November 19. Philadelphia.*—Busy moving in town. Exact situation of his house at Fourth and Market streets. Encloses a number of papers. Is as poor as Job. Delays incident to electing a new Treasury Board; thinks the two men chosen thus far a strange selection. Mr. Furman's demand for Sussex County if Col. Hooper leaves the department; his reasons for wanting it. Congress brooding over a regulating scheme to anticipate the proposed convention of Northern and Middle States. Vol. ix, No. 99.
- 1779.—*November 23. Philadelphia.*—In an awkward situation as to moving and in a wretched state as to money. Steps taken by him to obtain cash. Would tell him secrets about the French fleet and also a new scheme in Congress to raise money, if Gen. Greene ever told him a word of the movings and shiftings of the army. Vol. ix, No. 103.
- 1779.—*November 28. Philadelphia.*—Have taken possession of their new habitation. Hopes of a sum of money from the Treasurer. Nothing further heard of the troops bound to the southward. High prices of everything. Schemes of Congress concerning the staff. Valuable enclosure for Col. Lewis. Vol. ix, No. 104.
- 1779.—*November 29. Philadelphia.*—Highly seasoned letters from Col. Hay and others, which he has been showing the Treasury Board. Informing him of the arrival of a small vessel from the West Indies which will nearly replace their loss in the brig *Gerard*. Sends him by Mr. Parsell \$200,000; the same sum goes to Col. Hay. Vol. ix, No. 105.
- 1779.—*December 2. Philadelphia.*—Concerning his presentation on behalf of Gen. Greene of the locket, and Mrs. Mitchell's graceful acceptance of it. Question of the tradesman's bill and the exorbitant price of gold. State of his feelings toward the Treasury. Account of terrible arrears in his department and his numerous appeals, few of which were granted; suspects partiality to other departments. Desires his and Mr. Weiss' advice on the best means of preparing an account of expenditures. Vol. ii, No. 16.
- 1779.—*December 4. Philadelphia.*—Account of a conversation held with the Treasury Board, in which he set forth in quite a

PETTIT, CHARLES (Col.) (*continued*):

long speech the need of money and the tardiness with which it was supplied, especially to his department. Letter of the 1st inst. from Col. Biddle mentioning the situation of the army as three miles west of Morris; desires an order on the Treasury for \$500,000 to provide for the cavalry. Resolve of Congress to draw bills on Europe at six months' sight for £200,000 sterling; also to move from Philadelphia the next spring, but not yet determined whither. Suffering from inflammation of one eye, which may prevent his writing.

Vol. ii, No. 15.

- 1779.—*December 28. Philadelphia.*—Acknowledging letter of 24th inst. Announcing his appointment as one of the Managers of the Assembly; does not like to decline as it might knock up the amusement or bring the Tories into consequence again, just as they are humbly coming to amusements as visitors on their good behavior. Col. Mitchell shines in the administration of the laws of the Assembly. Sends him by Thomas McDowell, express-rider, \$171,000, but warns him that he will get no more. Obligated to send many messengers away empty. Two or three new Committees of Congress appointed respecting supplies; they are calling for estimates and returns, scarcely knowing what they ask for, or what to do with the answers when they get them.

Vol. ii, No. 17.

- 1780.—*January 5. Philadelphia.*—Want of money. Scheme of drawing bills turning almost to a bubble. "Thus public affairs are managed!" First division of Virginia troops have marched. Room always ready for Mrs. Greene.

Vol. viii, No. 83.

- 1780.—*January 18. Philadelphia.*—Glad to find that each man in the army can again draw an entire ration per day. Effect on the arrangements of his department of the late law passed in Jersey for purchasing. Congress acting as though they wanted to get him and his agents out of the way, and had not nearly spirit enough to say so. Reasons against his resigning. Things in a bad way. Stream of new money dried up. Taxes inadequate to meet the demands. Domestic loans looked at askance by the prudent.

Vol. ii, No. 18.

PETTIT, CHARLES (Col.) (*continued*):

1780.—*January 26. Philadelphia.*—Difficulty of getting his debts paid by the Treasury Board. Enclosing resolution of Congress of the 20th; also a letter received that day from Board of War. Can do nothing without money, which he cannot get. Congress doing nothing to the point. Surprised at Col. Mitchell's delaying so long at camp when his presence is needed in Philadelphia. Insufficient number of teams employed in carrying provisions for him to Trenton; afraid to give other than general directions, as Col. Mitchell is expected every day.

Vol. ii, No. 19.

1780.—*February 26. Philadelphia.*—In compliance with his request, has obtained a special order on the Loan Office for \$250,000, which granted nothing, because it deprived him of getting the like sum for other purposes. Trouble with the Treasury Board over orders they gave him, and which now they decline to be responsible for. High complaints against Col. Cook; has written him a letter on the subject. Things going from bad to worse—miserable condition of horses, lack of money and pressure of creditors, and no disposition on the part of his superiors to lessen the difficulties. Remarkable manner in which the public debts are annihilated—*on paper*.

Vol. ii, No. 20.

PICKERING, TIMOTHY:

1780.—*January 26. War Office.*—Asking him to look into the claim of one Jeremiah Clark, and compensate him for the articles falling within Gen. Greene's department. Has reason to think that Mr. Clark and his men deserve a generous reward for bringing off the aforesaid articles.

Vol. ix, No. 106.

1779.—*February 2. War Office.*—Opinion of the Board that all clothing in Mr. Otis' hands should be reserved for the military part of the army.

Vol. viii, No. 106.

1779.—*February 26. War Office.*—Suggesting certain regulations to be adopted in the case of soldiers discharged from duty as wagoners, so that they may return at once to their regiments, and their officers may know what has become of them.

Vol. ii, No. 21.

PIERSE, JOHN, JR. :

- 1780.—*November 9. West Point.*—Asking him to give directions that his office may be supplied with firewood.

Vol. ix, No. 95.

“PLEBIA :”

Poem by a young lady, signed Plebia, to Gen. Greene, founded on a quotation of Plato's, that “The general of an army . . . looks upon himself as an executor of Divine justice by war, but he banishes all private views, false glory, unbridled ambition, barbarous cruelties and unjust exactions.”

Vol. x, No. 6a.

PUTNAM, ISAAC (Gen.) :

- 1779.—*May 9. Reading.*—Acknowledging favor of 3d ult. Concerning the frequent applications made by owners of land in the vicinity of the encampment for orders to procure payment for woods, timber and other articles furnished for the use of the division. Some general rule must be adopted. Asks Gen. Greene to suggest some method most conducive to the public good.

Vol. vii, No. 50.

REED, JOSEPH (Pres't of Pennsylvania) :

- 1779.—*January 28.*—Asking that the Quartermaster's department will settle John Coryell's affairs—that is, if he does not refuse reasonable propositions.

Vol. ix, No. 107.

- 1779.—*January 30. Walnut St.*—Wishes to know whether he has given any orders or directions to any officers in his department to settle the account, which was lately pending between Gen. Arnold and certain subjects of Pennsylvania. Some transactions mentioned as having passed highly injurious to the interest and honor of the State.

Vol. ii, No. 22.

- 1779.—*January 30.*—Acknowledging his favor, which he will communicate to the Council. Thinks it wiser, if Mr. Mitchell has anything to say, for him to write it. Council meets that evening, so that if anything is to be offered, the sooner the better.

Vol. ii, No. 23.

- 1779.—*February 1. Council Chamber, Philadelphia.*—In answer to his letter can only say that Jordan has sworn to the particulars he mentioned. Mr. Mitchell's representation will have its due weight, if he thinks proper to make it in writing. Re-

REED, JOSEPH (Pres't of Pennsylvania) (*continued*):

quests him by the desire of Council to send them an office transcript of the entry of these wagons into the public service and their discharge, and also attested copies of the certificates.

Vol. ii, No. 24.

- 1779.—*May 29. Philadelphia.*—Indignant at the expression of a hope in one of Gen. Greene's letters that the prejudices against Gen. Sullivan and Col. Hooper will not embarrass the public service. Declares that "if the devil had been general and the next imp in mischief and wickedness his quartermaster" would still have done everything to forward the service. Introducing Col. Matlack, who attends with the papers on Gen. Arnold's trial. Kept from camp owing to delicacy on account of Arnold's trial. Vol. v, No. 95.

- 1779.—*February 4. Walnut St.*—Their proposition respecting the bridge at Schuylkill made to Gen. Greene has remained unanswered some time. The Assembly having met, they therefore request an early determination. Vol. viii, No. 87.

ROSS, GEORGE:

- 1779.—*May 23. Lancaster.*—Acknowledging favor of the 19th inst. Difficulty of engaging carters. Number of teams and horses on hand. Vol. v, No. 63.
- 1779.—*July 29. Philadelphia.*—Acknowledging favor of 20th inst. Is sending an account of his issues for a year ending May 1, 1779. Busy making returns of stores on hand and persons employed. Vol. viii, No. 88.
- 1779.—*December 2. Lancaster.*—Enclosing a return of stores on hand and persons employed up to the 1st inst. Desires some printed blanks for returns. Vol. ii, No. 26.
- 1780.—*February 7. Lancaster.*—Badness of roads and hurry of troops passing through prevented his sending on the returns of January. The requests in his letters shall be strictly complied with. Vol. ii, No. 27.
- 1780.—*February 18. Lancaster.*—In consequence of repeated directions, has had advertisements struck and distributed through his district, calling on the people to come in and make settlement. So far only six persons have applied. Some other expedient might perhaps be better. Vol. ii, No. 25.

RUSSELL, WILLIAM (Col.):

- 1779.—*November 8. Camp near Smith's.*—Just returned from Morristown, where Col. Abeel has been acquitted of the charge against him. Advises the publishing of certain letters in order to do some justice to Col. Abeel's character. Capt. Young wishes him to inform Gen. Greene that he has a horse which he wants to exchange for a Continental mare; describes them.
Vol. ii, No. 28.

ST. CLAIR, ARTHUR (Gen.):

- 1780.—*February 7. Crane's Mills.*—Requesting that a horse may be sent him, as his own is quite worn out and he has to make twenty or thirty miles daily. Has neither wax nor wafers to close his letters.
Vol. ii, No. 64.

SANFORD, LEMUEL (Justice of the Peace), and Five Selectmen of Reading:

- November 1.*—Asking that Joseph Griffin, an artificer, may be discharged, as he has a large family in great need of assistance.
Vol. ix, No. 108.

SARGENT, WINTHROP:

- 1780.—*January 20. Gloucester.*—Desiring payment for his schooner, which was taken in April, 1779, on her passage from South Carolina. She was laden with rice, and was ordered to Samuel Allen Otis, Esq.
Vol. ii, No. 29.

SAYLES, D.:

- 1780.—*February 19. Camp.*—Agreeable to the General's desire, has sent two orderly books for the use of Gen. Stark's brigade. Will report the teamsters to the General as soon as he gets their names.
Vol. ii, No. 30.

SCHUYLER, PETER (Col.):

- 1779.—*October 8. Albany.*—Acknowledging his favor of the 4th inst. and promising to assist him in procuring boards; has taken measures which will certainly furnish between 12,000 and 15,000 by the 16th inst. Arrangements made for their transportation. Hopes to be of the party to New York.
Vol. ii, No. 33.

SCOTT, DR.:

- 1780.—*February 3. Morris.*—Has found a mare, with the Continental brand, in the possession of Col. Berry that was stolen from him three years before. Desires the General's directions to Col. Berry on the premises.
Vol. ii, No. 34.

SCULL, P. (Secretary):

- 1779.—*January 5. War Office.*—Has been directed to furnish the enclosed list of articles which were ordered last April from France and are expected to arrive before the opening of the next campaign. Vol. ii, No. 38.
- 1779.—*January 20. War Office.*—Begging him to mark out some system by which Mr. Hiltziemer, the keeper of the public stables, may know who are and who are not entitled to have their horses kept at the public expense. Vol. ii, No. 39.
- 1779.—*May 21. War Office.*—Enclosing an order on the assistant clothier at Fishkill to furnish Gen. Greene's department. Vol. v, No. 46.

SHAW, S.:

- 1779.—*February 22. Quarters of the Artillery, Pluckemin.*—Concerning a horse left by Col. Harrison in the care of Capt. Pryor. By order of Gen. Knox, a ration was issued for said horse up to within a few days past, when the foragemaster refused to issue any more. As the case stands, Capt. Pryor must either turn the horse adrift or be at very great expense in keeping him till Col. Harrison's return. Vol. ii, No 35.

SHEPARD, WILLIAM (Col.):

- 1778.—*October 30. Providence.*—Complaining of the conduct of Mr. Charles Whittelsey, who tried his best to make mischief in Col. Glover's brigade and succeeded in almost creating a mutiny. Thinks Mr. Whittelsey deserves to be turned out of the service. Vol. ii, No. 43.

SHERIFF, CORNELIUS (Col.):

- 1779.—*October 1. Wyoming.*—Just left the army twenty-seven miles above Tioga healthy and spirited after penetrating the most interior part of the Indian country, destroying their towns and produce and laying waste the whole of their settlements. Describes the country as the richest and most beautiful in the world. Desires to go home and see how his affairs are situated. His pay inadequate to his expenses. Considerable waste of quartermaster's stores since the commencement of the expedition, especially on long and rapid marches. Number of horses much lessened. Will send returns later. Vol. iii, No. 99.

SHERIFF, CORNELIUS (Col.) (*continued*):

- 1779.—*October 22. Easton.*—Acknowledging his favor of the 14th inst. Disposition to be made of the boats. Finds it necessary to go home, but will be at headquarters before the troops reach there.

Vol. ii, No. 42.

[Note on back of MSS.: "Died prior to December 8, 1779. See Col. Johnson's letter."]

SHERMAN, JOHN:

- 1780.—*January 7. Camp.*—Asking him to grant Capt. Bull's request for a horse, saddle and bridle, as he is directed to take charge of the men discharged from the 1st Connecticut Brigade to Danbury.

Vol. ii, No. 41.

SHREVE, ISRAEL (Col.):

- 1779.—*May 23. Elizabethtown.*—Has received tents, but has no sort of wagon or carriage in case the enemy should move that way; begs that they may be sent immediately. Expedition certainly on foot at New York in flatboats, with their main body somewhere. Lines very weak; only his regiment and about one hundred militia between Acquacanac and Woodbridge.

Vol. v, No. 65.

- 1779.—*May 25. Elizabethtown.*—Acknowledging favor of 24th inst. Will get the tents out of town by night. Will apply for wagons.

Vol. vi, No. 11.

- 1779.—*May 26. Elizabethtown.*—Thought best to send the tents three miles back of the above place. Sends all the intelligence he could collect.

Vol. v, No. 71.

- 1779.—*November 15. Scotch Plains.*—Arrived after a long march in pretty good health and spirits. Enemy quiet at New York. Admiral Arbuthnot sailed last Friday. Asks that, if possible, his regiment may occupy Burlington barracks when the army goes into winter-quarters. His family lives there, and also he could recruit his regiment there against the opening of the next campaign.

Vol. ix, No. 109.

SICKELS, THOMAS [for Col. Lewis]:

- 1779.—*October 7. Albany.*—Reason for delay in sending returns. No paper fit for use at Albany; begs for a few reams of good paper.

Vol. iii, No. 100.

SICKELS, THOMAS [for Col. Lewis] (*continued*):

- 1780.—*January 11. Albany.*—Promising to send the accounts ordered for the inspection of the Board of War sometime in the following month. Represents the small amount of their pay, the depreciated state of paper currency and the heavy taxes, and asks to know what subsistence money will be allowed. Destitute of cash to buy forage, which every day becomes dearer. Vol. ii, No. 45.

- 1780.—*January 15. Albany.*—Enclosing return of stores for the last month. Express that went to Philadelphia for money returned without any. People grumbling much at being kept out of their money. Begging him to remind Col. Abeel of the scales, weights and sheet-iron he gave him a memorandum of. Vol. ii, No. 46.

SIZER, WILLIAM (Capt.):

- 1779.—*October 4. West Point.*—Asking that Sergeant Pool, being a proper boat-builder, may go with him. Vol. iii, No. 101.

- 1779.—*October 17. Fishkill.*—Men under his command building the boats work from daylight till dark, with only the necessary time for breakfast or dinner. They have petitioned in consequence for a larger allowance of provisions; suggests a full ration and a half during this exigency. Vol. iii, No. 102.

SMALLWOOD, WILLIAM (Gen.):

- 1779.—*October 7. Camp, Sandy Beach.*—Has sent two sergeants, one corporal and fourteen privates, who say they are shipwrights and sailmakers; asks that they may be returned to the brigade as soon as their work is performed. In former drafts has never had the men properly returned. Tried in vain to get shoes for the men; hopes they can be furnished with them. Vol. iii, No. 103.

- 1779.—*October 15. Camp, Sandy Beach.*—Asking that Mr. Ramsey and Mr. Morrow, purser and surgeon's mate under Capt. Nicholson, may have a light wagon and two horses to carry themselves, their own and the captain's baggage to the Continental frigate *Trumbull*, the ship being all ready to sail. Vol. iii, No. 104.

SMALLWOOD, WILLIAM (Gen.) (*continued*):

- 1779.—*December 9. Camp.*—Requesting him in the most earnest manner, to press Col. Sheriff to furnish an account of such articles as were received by him for the Continent, out of the prize brig *Lymetry* and, if possible, to appear in person in order to facilitate a settlement between the public and the captors. Vol. ii, No. 48.

- 1780.—*January 26. Annapolis.*—By a late act of the Legislature of Maryland, no person can act in the Quartermaster', Commissary or Forage departments if concerned in trade or traffic not incidental to the duties of office; this will occasion the resignation of Mr. Calhoun. Recommends Mr. John Bullen as his successor. Vol. ii, No. 47.

SMITH, ELIJAH:

- 1779.—*October 4. Glastonbury, Conn.*—Asking for payment for a horse, worth at the time of its impressment £25. Gives all the details concerning the matter. Vol. iii, No. 105.

SMITH, HUGH:

- 1779.—*February 28.*—The Eastern post not arriving in time, the Southern rider departed without any mail. Would be exceedingly obliged if the General would give an order for one of his express-riders to take charge of it to Philadelphia. Cannot find a man for money. Vol. ii, No. 52.

SMITH, JOHN W.:

- 1779.—*August 1. Smith's Clove.*—Stating damages sustained on his farm during an encampment there of Gen. Sinclair's division; asks to whom he must apply for payment. Vol. vi, No. 110.

SMITH, WILLIAM:

- 1778.—*June 21. Springfield.*—Acknowledging favor of 12th inst. Stores sent forward. Quantity of clothing forwarded to Gen. Knox at Fishkill. Has appointed Mr. Rice, of Brookfield, foragemaster for that post. Will make scows as soon as possible; boatmen engaged. The town has great objections to a Continental ferry. Place chosen for stores.

Vol. x, No. 11.

- 1779.—*January 8. Springfield.*—Acknowledging letters of 13th and 14th ult. Forwarded by Mr. Laurence his accounts to

SMITH, WILLIAM (*continued*):

December 1. Has appointed Mr. Josiah Harvey to furnish teams for transporting provisions in upper part of the State. Called upon to send to Albany 1500 barrels of beef and pork and 90 loads of rum, rice, etc. For these and other demands a large sum of money is needed. Impossible to engage wagoners at twenty-six and two-thirds dollars per month on account of the depreciation of the currency.

Vol. ii, No. 49.

1779.—*January 25. Springfield.*—Has transmitted by Mr. Shelden his accounts and returns for month of December. Has also forwarded part of the tools and all the salt, with the greater part of the stores at Westfield.

Vol. ii, No. 50.

1779.—*January 26. Springfield.*—Concerning the building of the boats. Opposition to this measure by the Selectmen of the town.

Vol. viii, No. 90.

1779.—*February 13. Springfield.*—Enclosing account and return for the month of January; expects to want \$25,000 before the 2d of March for transporting various articles.

Vol. iv, No. 90.

1779.—*May 9. Springfield.*—Acknowledging favors of 19th and 29th ult. The \$54,000 sent was all due before it arrived. Number of tents forwarded and their destination.

Vol. vii, No. 53.

1779.—*May 22. Springfield.*—Sends Mr. Abel King for a supply of money to enable him to perform the services demanded. Tents forwarded to Fishkill; stores destined for Albany gone forward.

Vol. v, No. 56.

1779.—*July 22. Springfield.*—Enclosing an account of services performed for the troops of the Convention from 1st September to the time they left Massachusetts.

Vol viii, No. 89.

1779.—*October 9. Springfield.*—His order of the 4th inst. to furnish teams, transports, etc., shall be punctually attended to. Stores ordered by Gen. Knox, about twenty loads in all, will proceed to Claverack in a few days; also fifteen loads of clothing. Enclosing accounts and returns for the month of September.

Vol. iii, No. 106.

SMITH, WILLIAM (*continued*):

1779.—*October 18. Springfield.*—Acknowledging order of the 5th inst. All the clothing ready has gone to Claverack; also sent 1000 bushels of salt. Requests a supply of cash to pay for transportation of stores. Vol. iii, No. 107.

1779.—*November 8. Springfield.*—Acknowledging favor of 21st ult. Has forwarded a number of stores for Col. Hay. Accounts and returns for October. On account of depreciation of money, officers employed by him cannot furnish themselves with clothing; desires to know if clothing may not be delivered to them at the same rate as others in the service.

Vol. ix, No. 111.

1780.—*February 13. Springfield.*—Enclosing his accounts and returns for January, sent by Conductor Avery, who has under his care to Newburgh twelve loads of clothing.

Vol. ii, No. 51.

SPYCER, SAMUEL:

1780.—*February 24. Harriston (?)*.—After much trouble has reached the above place; enumerates the horses he has left behind him on his journey. Vol. ii, No. 53.

STEEL, ARCHIBALD:

1779.—*February 20. Pittsburgh.*—Acknowledging favor of the 20th ult. Beyond doubt that he has fallen under Gen. McIntosh's displeasure, but flatters himself that he has maintained a good character with his countrymen in general. Acquitted of all the charges by the Court. Aware that it is his duty to cultivate harmony with his commanding officer, but quite impossible to do so with Gen. McIntosh. Is preparing his accounts. Difficulties of his situation. Breach between him and Gen. McIntosh so great that it can never be healed.

Vol. iv, No. 91.

1779.—*November 30. Martinsburg.*—Acknowledging favor of 29th September. Returns of stores and persons. Complaints of wages. Intends to set out for Fort Pitt to procure stores. Col. Broadhead's demands strictly attended to. Distressed for want of money; drivers destitute of almost every kind of clothing. In daily expectation of money from Mr. Pettit.

Vol. ix, No. 110.

STEEL, ARCHIBALD (*continued*):

- 1780.—*February 16. Martinsburg.*—Acknowledging favors of the 2d and 19th ult. Question of his accounts; when they will be ready. His line of conduct approved by the Board of War. Certain moneys obtained in exchange for certificates. Great need of cash. Vol. ii, No. 56.

STEPHENS, WILLIAM: •

- 1779.—*October 5. Newtown.*—Has forwarded all the provisions. Will strictly comply with every order. Thinks fifty horses can be collected out of the different pastures fit for service. Has engaged wintering for 100 horses some distance from any public road. Has raised some fine potatoes; hopes Gen. Greene will accept of some barrels. Vol. iii, No. 109.

- 1779.—*October 8. Newtown.*—Acknowledging letter of 3d inst. Has sent on all the salt and flour; will send also fifty or sixty horses. Col. Biddle approves the plan of providing stabling for 100 horses during the winter. Vol. iii, No. 110.

- 1779.—*October 19. Newtown.*—Has been making all preparations possible for Gen. Sullivan's army. Will send on one load of potatoes, and if possible, Mrs. Stephens will procure a firkin of butter. Vol. iii, No. 111.

- 1779.—*December 10. Newtown.*—Sending saddle of venison by an express. Will send some vegetables. Impossible to get butter or salt. Vol. viii, No. 91.

- 1780.—*January 14. Newtown.*—Delay of teams caused by heavy snowfall. Some time the following morning sixty sleds will start for Newburgh [Newburg]. Vol. ii, No. 59.

STEBEN, BARON:

- 1779.—*November 20. New Windsor.*—Asking him to find a good house for himself and family in the neighborhood of the army, and to acquaint the quartermaster at Morristown with his choice, that he may apply to him on his arrival.

Vol. ii, No. 58.

STEWART, CHARLES:

- 1779.—*February 15. Headquarters.*—Very unwell and fearful of a tedious attack of sickness. A temporary magazine at the landing necessary to supply the posts at Elizabethtown, Newark and Springfield, etc.; also the bridge over Raritan wants repairing. Vol. iv, No. 94.

STEWART, CHARLES (*continued*):

- 1779.—*February 16. Kain's Quarters.*—Obliged through sickness to leave camp in an hour, on his way toward Kingwood, his former residence. Desires him to order an express to go to Philadelphia by way of Trenton, with the packets the bearer will give him. Vol. ii, No. 55.
- 1779.—*May 17. Camp.*—Sends map by bearer. Asks that a horse may be spared to a trusty person whom he is going to send to Brinker's Mill to establish a post there. Intends accompanying Gen. Sullivan on his road to Easton. Vol. v, No. 6.
- 1779.—*May 31. Commissary Office.*—Will set out for Easton at noon to meet Gen. Sullivan and prepare his department so that Gen. Sullivan may proceed. Will need one or two persons with him to fix them as commissaries along the line of march. The bearer being one of them, needs a saddle for his horse; hopes the General will spare him one. Informed that the river is in fine order and things going on well. Vol. vi, No. 25.

STEWART, WALTER (Col.):

- 1778.—*January 4. Fredericksburgh.*—Recounting his journey with Col. Ball of 300 miles in five weeks, and the kindness and hospitality of their friends en route, as well as in Virginia. Unhappy situation of the people for want of bread. Enormous cost of wheat and pork. Disappointed to find the money of as little value as at Philadelphia. Fears for another campaign. People chagrined that a much severer sentence was not passed on Gen. Lee. The gentlemen of Virginia exasperated against R. H. Lee. Compliments to Mrs. Greene; hopes his and their lottery tickets will be successful as it is really necessary. Expects to shake him by the hand the beginning of March. Vol. ii, No. 57.

STODDERT, BENJAMIN (Major):

- 1779.—*December 3. War Office.*—In consequence of the enclosed resolves of Congress, is ordered by the Board to urge him to furnish them punctually with the returns, directed by the regulations of his department. Vol. ii, No. 62.
- 1779.—*December 28. War Office.*—Encloses an order for 2000 hides, but the great demand for shoes renders it improper that

STODDERT, BENJAMIN (Major) (*continued*) :

the hide should be applied to any other uses, and prevents discretionary orders being given to Col. Lewis and Col. Hay.
Vol. ii, No. 63.

STORY, J. (Major) :

1779.—*May 19. Camp, Middlebrook.*—Agreeable to instructions and the foregoing estimate, has taken up three barns belonging to Ernestus Harlingen, Esq., and Messrs. Duryee and Vandoran.
On back of MS., Vol. v, No. 42.

1779.—*May 20. Camp, Middlebrook.*—Has been to Somerset and finds no building as suitable for the accommodation of the sick as Mr. Duryee's barn; mentions other barns which might do with some repairs; difficulties attending the granting of Mr. Duryee's request to have his barn released.

Vol. v, No. 37.

STIRLING, LORD :

1779.—*January 22. Middlebrook.*—Acknowledging favor of the 14th inst. Gen. Greene's (?) desire to leave gay Philadelphia for camp proves that variety is the best sauce of life. For himself, he is easily satisfied. No truth in the reports of the enemy's intended landing. Desires New York newspapers.

Vol. viii, No. 92.

1779.—*November 8. Morristown.*—Promising to view the several districts of country mentioned by Gen. Greene with a view to the different points of conveyance, safety and protection to the country.

Vol. ix, No. 112.

1779.—*November 9. Baskinridge.*—Concerning the choice of suitable quarters for the army. As a result of a five days' search, mentions the situation which he thinks preferable to any in New Jersey. Plenty of wood and water there, and though not many comfortable houses for the quarters of general officers, still enough to make shift with. Will join his division in a day or two unless His Excellency should wish him to remain where he is. Intelligence of a fleet sailing from New York with 8000 troops said to be for the West Indies; no such news at Gen. Maxwell's quarters, but certain that they are preparing for an embarkation.

Vol. ii, No. 60.

SULLIVAN, JOHN (Gen.):

- 1779.—*February 11. Providence.*—Acknowledging favor of 26th ult. Fears unless something is done for the army, there will be no troops for the next campaign. Gaiety of the Philadelphians perhaps the reason of the slow movements of Congress. Description of a small encounter with the enemy in which they were deprived of their plunder. Vol. iv, No. 97.
- 1779.—*February 17. Providence.*—Acknowledging letter of 9th inst. Not aware of the resolution of Congress mentioned by Gen. Greene. Vol. iv, No. 96.
- 1779.—*May 4. Millstone.*—Asks that the important letters accompanying this may be forwarded immediately. Complains that a letter of his to Gen. Knox was delayed three days after being sent to Gen. Greene's office. Vol. vii, No. 59.
- 1779.—*May 10. Headquarters, Easton.*—Everything in good order barring a sufficiency of pack-saddles. Asks whether the 600 horses destined for camp are for him. Thanks him for information respecting Col. Van Schaick. Vol. vii, No. 60.
- 1779.—*May 12. Millstone.*—Will march from Easton for Wyoming the 20th inst. Wishes to know if certain articles will be ready for the expedition. Not yet in receipt of inkstands. Vol. vii, No. 77.
- 1779.—*May 16. Millstone.*—Enclosing an answer to a letter from the Board of War, informing him that all wheels must stand still until they hear from him (Sullivan); therefore Gen. Greene must send a flying express, who is not to eat, drink or sleep till he reaches Philadelphia. Vol. v, No. 2.
- 1779.—*May 16. Millstone.*—Enclosing Col. Power's order with a receipt thereon. Begs him to send the money before night. Vol. v, No. 8.
- 1779.—*May 23. Easton.*—Asking for information concerning the artificers. His troops in want of canteens. Vol. v, No. 62.
- 1779.—*October 22. Easton.*—Acknowledging favor of 20th inst., and thanking him for his congratulations on his safe return, and the success of the troops under his command. Will march his army to Warwick agreeable to directions. Vol. iv, No. 95.

SULLIVAN, JOHN (Gen.) (*continued*):

1779.—*October 27. Easton.*—Acknowledging favor of 23d inst., with enclosed memorial. All the general officers under his command concur in the necessity and propriety of the measure. Vol. ii, No. 65.

1779.—*November 30. Pompton.*—Alarming state of his health necessitates his retiring from the army, at least for a time. Question of supporting his horses until his return; begs him to furnish his aide-de-camp, Maj. Pierce, with \$3000 for their support. Vol. ii, No. 66.

TALLMADGE, BENJAMIN (Major):

1779.—*October 17. Pine Bridge.*—The bearer, Lieut. Wadsworth, with a party of dragoons will wait on him for directions respecting those horses which were promised to Col. Sheldon's regiment. Vol. ii, No. 68.

THOMPSON, JAMES (Clerk in Capt. Mill's company):

1778.—*February 15.*—Absolutely unable to support his family on his present wages, therefore requests a discharge from the service.

[Letter from John Glover to Gen. Greene on back of MS., mentioning, out of compassion, the distressed circumstances of Thompson's family; believes if he is discharged from the service he can support them much better.] Vol. iv, No. 99.

THOMPSON, JAMES (Col.):

1779.—*January 11. Middlebrook.*—Acknowledging favor of 7th inst. Has used every means in his power for the preservation of cattle. Need for new wagons, also oil and brushes. Vol. viii, No. 95.

1779.—*January 17.*—In answer to his favor of the 7th inst., wrote requesting that oil and brushes to repair and preserve the harness might be forwarded. Country teams for brigade duty coming in pretty fast. Vol. ii, No. 69.

1779.—*February 24. Camp.*—Pointing out some difficulties which may arise in his department. Inconvenience attending the wagon department for want of wagoners. Ventures suggestions which may aid in procuring a sufficient number. Vol. iv, No. 100.

THOMPSON, JAMES (Col.) (*continued*):

- 1779.—*October 1. New Windsor.*—Distemper among the horses, added to calls for others, makes it necessary for him to have fifty more. Scarcity of carters for the teams; hopes Gen. Wayne will trust them to men who have some knowledge of driving.
Vol. iii, No. 112.
- 1779.—*October 5. New Windsor.*—Condition of wagons and teams sent by Messrs. Ross and Morgan. Situation of carters distressing for want of blankets; Col. Mitchell writes that none are to be had at Philadelphia. Some watchcoats and some pieces of coarse duffel at Newburg if they could be procured. Impossible to expect men to lay out nights without a blanket. Horses die very fast.
Vol. iii, No. 113.
- 1779.—*October 8. New Windsor.*—Ox teams which Col. Hubbard engaged, necessary to keep up the magazine of provisions. Their time expires in a few days and they ought to be retained.
Vol. iii, No. 114.
- 1779.—*October 18. New Windsor.*—Opened the enclosed to get the inventory of wagons, horses, etc.; not one carter to the brigade. Impossible for him to furnish wagoners.
Vol. iii, No. 115.
- 1779.—*October 21. New Windsor.*—The bearer, Mr. James Bartley, wishes to know how he can be supplied with horses to complete Lord Stirling's division. Lack of provisions, grain and hay. Concerning teams and horses.
Vol. viii, No. 97.
- 1780.—*February 27.*—To oblige the General, will let his light wagon go, but will send driver and horses with it in order that it may be returned soon.
Vol. ii, No. 70.
- 1780.—*February 28. Morristown.*—Has opportunity of enlisting some wagoners for one year, if he can assure to them a certain amount of clothing besides the regular wages. Desires to know the regulation quantity. Many evils incident to having soldiers in that branch of the department under his care.
Vol. iii, No. 66.
- TILGHMAN, TENCH (Col.):
- 1779.—*October 7.*—Enclosing a petition from Mrs. Eliza Kingsland and asking that Kingsland might be employed at Albany.
Vol. ii, No. 73.

TILGHMAN, TENCH (Col.) (*continued*):

- 1779.—*October 16. Headquarters.*—Quoting an extract from Gen. Wayne's letter, asking for certain workmen. Requests Gen. Greene to detail the usual number of artificers to attend the light infantry. Vol. iii, No. 116.
- 1779.—*November 3. West Point.*—His Excellency desires him to have 1000 or 1500 sandbags put in hand for the engineers, also to consult Col. Biddle on the propriety of ordering Baylor's dragoons to Westfield. Vol. ix, No. 114.
- 1779.—*November 25. West Point.*—His Excellency desires that he shall fix upon the Acquaquenac position if it answers the description given by Col. Dehaart and Major Barnet. The greatest objection will be the increase of transportation. Officers commanding the different divisions have directions to follow Gen. Greene's orders for their route between Pompton and Morristown. Suggests posting an officer on the road to direct the march, if the Acquaquenac position is taken. Vol. ix, No. 115.
- 1779.—*December 23. Headquarters.*—Asking for a wagon to carry 800 pairs of shoes to the light infantry. Vol. viii, No. 93.
- 1780.—*January 6. Headquarters.*—Concerning a box of stationery selected by Gen. Gates. Vol. ii, No. 72.
- 1780.—*January 15. Headquarters.*—His Excellency desires that he will send five or six sleighloads of boards to Gen. Irvine and have as many in readiness for Col. Stewart's party. In need of white rope. Vol. ii, No. 71.
- 1780.—*February 24.*—Enclosing order on the Commissary of Hides for the number requested. Vol. viii, No. 94.
- 1780.—*February 25. Headquarters.*—Orders from His Excellency to have 400 or 500 bricks brought up to repair Mr. Ludwig's ovens, as a great deal of grain has been wasted for lack of good ovens. Vol. ix, No. 116.

TILTON, JAMES (Dr.):

- 1780.—*February 15. Baskinridge.*—Application for a fatigue party to cut sufficient wood to serve the hospital for a month or two. Vol. ii, No. 75.

TRAILL, ROBERT :

1779.—*May 1. Easton.*—Col. Hooper having forgot to send the map by express, he forwards it by bearer. Vol. vii, No. 15.

1779.—*May 29. Easton.*—By request of Col. Hooper, informs him that 250 pack-saddles will be immediately sent to New Windsor. Vol. v, No. 92.

1780.—*January 13. Easton.*—By order of Col. Hooper, has sent twelve saddles of venison, weighing 409 pounds; 200 barrels of beef at the camp, which shall be sent with the greatest dispatch. Vol. ii, No. 76.

TURNER, P. :

1780.—*January 26. Danbury.*—Asking payment for a horse which cost £25 at the commencement of the war, and after being in constant service four years, died still in the service. Hospitals as comfortable as the severity of the season will allow.

Vol. ii, No. 78.

1780.—*February 14. Danbury.*—Duplicate of the above.

Vol. ii, No. 79.

VAN COURT, MICHAEL :

1779.—*November 25. Easton.*—Will receive about thirty horses from Col. Hooper; will bring them on to camp by way of Morristown. Vol. ix, No. 117.

VARNUM, JAMES (Gen.):

1779.—*January 13. Warwick.*—Announcing the removal of Mr. Mitchell and the installation of Capt. Tew as quartermaster. Enemy in Rhode Island have been short of provisions. Act passed by General Assembly concerning impressment of articles for the army. Gen. Sullivan very angry. Most of the posts without wood and forage. Warren and Bristol supplied in time. Luxury and dissipation of every kind prevail. Public currency of no estimation. Wood \$30.00 a cord; other things in proportion. Wishes to know intention of Congress concerning his application for dismissal from the service. Mrs. Varnum well; his brigade in perfect health.

Vol. ii, No. 80.

VILLEFRANCHE (Master of Engineers) :

1779.—*November 7. Verplank's Point.*—By order of His Excellency, is engaged in surveying Stony Point and all the country

VILLEFRANCHE (Master of Engineers) (*continued*):

around. Unable to get good paper to make a fair copy of it, so is obliged to apply to Gen. Greene. Would also like an order for a bridle, his having been stolen off his horse.

Vol. ii, No. 81.

WADE, FRANCIS:

1779.—*January 27. Wilmington.*—Has not heard of Gen. Pulaski or any of his legion; has given instructions, however, about their reception. Difficulty of getting forage for the horses. Scarce a farmer within a radius of thirty miles will sell any grain. A prodigious saving of forage if the teams could be laid off until the navigation is open. Orders from Gen. Smallwood, for certain men employed by him to return to their regiment, a great detriment to the service, as he has no others to replace them with. Exceedingly troublesome force of about one hundred men under a lieutenant stationed at this post and robbing the inhabitants.

Vol. ii, No. 82.

1779.—*February 3. Wilmington.*—Acknowledging favor of 31st ult. Concerning contracts for oats and a supply of forage. Disagreement between himself and Col. Blair. If Gen. Greene thinks it proper to pass over the matter, he will submit to his better judgment.

Vol. ix, No. 118.

1779.—*May 28. Wilmington.*—Account of horses forwarded and those on hand. Difficult to procure drivers. Assistance given in removing public stores. Complains of the law governing the calling out of teams; also of the State Commissioners. Begg that Gen. Greene will not allow him to be superseded in his office without timely notice.

Vol. v, No. 88.

1779.—*October 6. Wilmington.*—Acknowledging favor of the 29th ult. Surprised at Col. Cox's omission to forward Gen. Greene his (Wade's) papers and returns, up to May 1. Just recovered from fit of sickness, but will set off the following day to the city and try to get copies of the returns. Badly off for a clerk who understands these matters, but will do the best he can.

Vol. iii, No. 117.

1779.—*October 27. Philadelphia.*—Acknowledging letter of 17th inst. Has sent the returns. Causes of the delay in his accounts: lack of money and proper assistants. Glad that time is arriving when a man may live in peace under his roof.

Vol. iii, No. 118.

WADE, FRANCIS (*continued*):

- 1779.—*November 18. Wilmington.*—Acknowledging favor of 9th inst. His efforts to get a clerk to help him with his books. Always considered his duty to his country rather than his private emolument. The many calls on him.

Vol. iv, No. 119.

- 1780.—*January 2. Philadelphia.*—Indignant at the late proceedings against the Staff department, which have failed again, according to the enclosed letter of Governor Rodney. Has assured the Governor that he will resume his station and continue his duties until a proper arrangement takes place. Want of cash. Flour at hand.

Vol. viii, No. 100.

- 1780.—*February 28. Wilmington.*—Acknowledging his favor of the 18th, also the books of certificates; the latter have caused a general alarm, preventing the people from coming in and settling their accounts; using every exertion to make the people take them. Unless money is provided, all supplies for the opening of the campaign will fall short. Lack of provisions for men and forage for horses at nearly all the posts that have been forwarding supplies to the army. For this reason has been obliged to let most of the teams withdraw from the service.

Vol. iii, No. 61.

WADSWORTH, JEREMIAH (Col.):

- 1778.—*November 25.*—Proclaiming his indifference to detraction or calumny. Not anxious to be classed with Gen. Greene's "wicked department." As he is dining at headquarters, will see him later.

Vol. ii, No. 83.

- 1779.—*February 24. Hartford.*—Body politic of Connecticut in a sad decay. Question of paying the bills at their nominal value. Not surprised at Gen. Sullivan's ordering a court of inquiry to investigate the conduct of the commissary for supplying his command. Is persuaded a more important inquiry will soon be necessary. Will avoid a quarrel if possible, but cannot promise.

Vol. x, No. 7.

- 1779.—*May 7. Hartford.*—Acknowledging favor of 30th ult. Will set out for camp soon, as he realizes he is needed there. Noise, confusion and dirt characterize this neighborhood; would rather be in Bedlam. Supply of cash to Hubbard saved their lives.

Vol. vii, No. 16.

WADSWORTH, JEREMIAH (Col.) (*continued*):

1779.—*October 28. Murderer's Creek.*—Letter from Bristol, R. I., which says the enemy have been blowing up and burning their works for two days, and all large ships have fallen down to the harbor's mouth. Enclosing certain letters.

Vol. viii, No. 102.

1779.—*November 1. Murderer's Creek.*—Informing him of the sources from which he expects to draw great quantities of bread.

Vol. ix, No. 120.

WASHINGTON, GEORGE (Gen.):

1778.—*October 29. Headquarters.*—Acknowledging favor of 28th inst. Nothing can be done toward the Canada expedition that winter; scanty supply of provisions afforded by the country at the head of Connecticut river. Will forbid the sending up of flour from Albany. Collecting and repairing of bateaux. Has fixed upon Danbury, West Point and Middlebrook for cantoning the army during the winter; number of brigades at these points to be regulated by the strength of the enemy. Probability of throwing a regiment into the Clove near Sufferns and placing a brigade at Albany. If the enemy keep a garrison at New York it will be of sufficient strength to repel any attack the Americans could make; would therefore lay aside all idea of collecting his force suddenly and extend his view to more remote cantonments. Good barracks at Trenton and Burlington; also wheat and mills in the vicinity. Advises removing provisions from the Sound to the foot of the mountain. Necessity of collecting materials for hutting.

Vol. x, No. 40.

1778.—*December 17. Middlebrook.*—Enclosing copies of two letters—one to Mr. Wadsworth concerning supplies for a large army to the northward, the other his answer, saying that the principal objection to the supplies being certain is the precariousness of carriage. Wants to know if it is possible for Gen. Greene to promise certain and uniform transportation.

Vol. ii, No. 97.

1779.—*February 24. Headquarters, Middlebrook.*—Requesting him to consult with the Commissary-General about laying in a magazine of four months' provisions for 1200 men at Fort Pitt and for 1000 men at Sunbury. Asking him also to obtain, in as

WASHINGTON, GEORGE (Gen.) (*continued*):

secret a manner as possible, a list of all the vessels from the Falls of Susquehanna to Wyoming, and certain other details. Orders concerning the returns of each month. Preparations for an Indian expedition to be prosecuted agreeable to directions expected from Gen. Schuyler. No further action to be taken in providing materials for the vessels of force, but the articles already on hand are to be kept secure from waste and loss.

Vol. ii, No. 95.

- 1779.—*March 2.*—In the list submitted to him, if the articles are wholly designed for such troops as may proceed by way of Wyoming, thinks the quantity too great; but if they are part of the general provisions for the use of the army, they might as well be purchased on tolerably good terms. [Copy.]

Vol. ii, No. 86.

- 1779.—*May 4. Middlebrook.*—Having already explained the plan of the western expedition against the Indians of the Six Nations, now informs him that Gen. Sullivan is appointed to the command of this expedition, and desires that he will give him every assistance in his power. Wishes to know at once how soon the wagons and other preparations will be ready, to enable him to make a general movement of the army. Gen. Greene knows the urgent motives to a speedy movement.

Vol. vii, No. 28.

- 1779.—*May 6. Headquarters, Middlebrook.*—The 1st Jersey Regiment under marching orders, and will move probably in two days. Hears from Gen. Maxwell that their portmanteaux and wagons are lacking, and that the tents are not taken out of the store at Morristown for want of wagons. Gives him this notice that there may be no delay on the above account, the whole brigade being under marching orders.

Vol. vii, No. 58.

- 1779.—*May 19. Headquarters, Middlebrook.*—Enclosing a letter from Gen. Sullivan, with the several papers to which he refers. Difficulties arising from deficiency of wagons, tents, etc., in Gen. Greene's department will claim the earliest notice. Asking for Gen. Sullivan's letter and the return from the New Hampshire Regiment.

Vol. v, No. 22.

WASHINGTON, GEORGE (Gen.) (*continued*):

- 1779.—*May 31. Headquarters.*—Acknowledging Gen. Greene's (?) favor, and happy to find the prospects of moving the army so good. Would wish to be in train to move by June 2.
Vol. vi, No. 26.
- 1779.—*October 5. Headquarters, West Point.*—Requesting him to take every measure in his line to facilitate the junction of Gen. Sullivan's troops with this army. [Copy.] Vol. ii, No. 100.
- 1779.—*October 25. Headquarters.*—Requesting him to give the order to supply Mr. Hatfield with return wagons to carry 2000 dried hides to be sent to Philadelphia. Mentioning Gen. Sullivan's change of route and asking that an express may be sent to meet him.
Vol. ii, No. 92.
- 1779.—*October 31. Headquarters.*—Wishing to know if a sufficient number of vessels can be procured to transport troops up the river, should the Indian incursion to the northward prove serious.
Vol. ii, No. 89.
- 1779.—*November 17. Headquarters, West Point.*—General directions for laying out the intended encampment. Position of brigades. Size and form of soldiers' barracks. Gen. Sullivan will furnish fatigue-men necessary for tracing the camp. Movement of baggage.
Vol. ii, No. 90.
- 1779.—*November 23. Headquarters, West Point.*—Acknowledging favor of 22d. Question of choosing a winter position for the army. Disadvantages of the position below the mountain. Choice dependent on the number of the enemy's force and their possible movements.
Vol. ii, No. 91.
- 1779.—*November 30. Pompton.*—Acknowledging favor of the 27th. After a consideration of all circumstances has decided upon the position back of Mr. Kemble's, so that he may proceed to laying off the ground. Expects to be at Morristown the next day and will be obliged if Gen. Greene will order him a late dinner. Understands his quarters are to be at Mrs. Ford's.
Vol. ii, No. 84.
- 1779.—*December 23. Headquarters, Morristown.*—Enclosing copy of letter received from Mr. Mitchell, showing how necessary his presence is in Philadelphia.
Vol. ii, No. 93.

WASHINGTON, GEORGE (Gen.) (*continued*):

- 1780.—*January 2. Morristown.*—Acknowledging his letter of the day before. Concerning the dismissal of express-riders; thinks as many as possible should be immediately discharged. Will write to Congress on the subject. Vol. ii, No. 101.
- 1780.—*January 24. Headquarters, Morristown.*—Concerning the dispossession of Capt. De Rochefontaine of his quarters in favor of Lieut.-Col. Stevens. Unfortunate that such things should happen to any officer, but particularly to a foreign gentleman; wishes the affair rectified and put upon a proper footing. Has received Mr. Conduit's letter; Gen. Lee in that part of the country; trying to prevent the intercourse of which he speaks, but seems impracticable to put a stop to it. Vol. ii, No. 99.
- 1780.—*January 27. Headquarters, Morristown.*—Orders to Gen. Greene to govern himself by the Act of 27th ult., directing the dismissal of the express-riders, with certain exceptions. Vol. vii, No. 106.
- 1780.—*January 30. Headquarters, Morristown.*—Advices received from Gen. St. Clair point to the enemy's having some offensive operation in view. Therefore requests that he will use his best endeavors to remove the forage at or near the lines, to Morristown. Has sent a copy of letter representing state of his department to Congress. Vol. ii, No. 96.
- 1780.—*February 8. Morristown.*—Acknowledging letter of same date, enclosing copy of one from Col. Berry, concerning the unwillingness of inhabitants to transport for the army at the regulated prices, from an apprehension that the regulations will not be general. Suggests the adoption of an expedient, it being indispensable that the transportation should go on with vigor. Vol. vii, No. 105.
- 1780.—*February 9. Headquarters, Morristown.*—The enclosed (No. 104a) transmitted him by Board of War through Baron Steuben. Asks him to have the returns made out as soon as convenient. Vol. vii, No. 104.
- 1780.—*February 18. Headquarters, Morristown.*—Thinks it better that the team with the clothing should not set out for Albany in the present state of the roads. Vol. ii, No. 98.

WAYNE, ANTHONY (Gen.):

- 1779.—*October 25. Camp, Second River.*—Acknowledging his favor of that evening and promising to wait on him at nine o'clock in the morning, on condition that Gen. Greene will dine with him and spend the night. Vol. ii, No. 88.

WEBB, JOSEPH:

- 1778.—*October 27.*—By desire of Governor Trumbull is going to the lines with Governor Franklin. In receipt of countermand orders. Vol. viii, No. 107.

WEEDON, GEORGE:

- 1778.—*November 9. Fredericksburg.*—Acknowledging letter of 14th ult., and congratulating him on the birth of a daughter. Would have given his only hat if it had been a son! Has leased a farm not far from town, where his friends will always receive a hearty welcome, and if Mrs. Greene will come, promises her a ball every week. Great hopes at the beginning of the Rhode Island expedition, disappointed. Desires his opinion on the state of the army, on the results of the Court-martial and the Eastern pole tax. Thinks the British are pretty tired and would gladly quit. Assembly still sitting; will communicate the heads of their deliberations in his next. Vol. ii, No. 102.

WEISS, JACOB:

- 1779.—*October 10. New Windsor.*—Enclosing Col. Mitchell's letter. Men actually suffering from want of blankets. Some coarse, blue woollens at the clothing store better than nothing. Wishes to know the General's opinion about issuing leather breeches to the artificers; also about getting returns of materials necessary for hutting, as the time for winter-quarters approaches. Vol. iii, No. 121.
- 1779.—*October 18. New Windsor.*—The bearer, Mr. New, waits on him with a desire of returning home to his family, his term of service being ended. Question of leather breeches. Vol. iii, No. 122.
- 1779.—*October 19. New Windsor.*—Enclosing list of articles requisite for hutting the ten brigades. Suggestions for getting other returns for the same purpose. Vol. iii, No. 124.

WEISS, JACOB (*continued*) :

1779.—*October 27. New Windsor.*—Concerning tents and returns. Vol. viii, No. 108.

1779.—*November 14. New Windsor.*—Will set off in the morning for Morristown. Asks that Mr. Tenbrook may be sent on before the army marches, to make certain preparations as regards stores, hutting, etc. Vol. xii, No. 10.

WENDELL, OLIVER :

1778.—*October 21. Boston.*—Asking for an order on Gen. Heath for the sum mentioned in the account. Vol. x, No. 9.

WEST, JACOB :

1779.—*December 6. Greenwich.*—Sends by bearer, Adam Hawk, a saddle of venison ; also some cereals for use of the forage department at Morristown. Vol. viii, No. 109.

1780.—*February 5. Greenwich.*—By request of Col. Hooper has purchased and sent on four turkeys, nine geese, and seven hens. Chairs will be ready some time the following week. Vol. ii, No. 104.

WHITTELEY, CHARLES :

1779.—*October 8. Providence.*—Directed by Gen. Gates to write the exact hour the express sets off with a letter from him to His Excellency, Gen. Washington. Col. Bowen has given orders to fix expresses at twenty miles distance from Providence, in accordance with orders received. Vol. iii, No. 119.

WILLIAMS, OTH. H. :

1779.—*May 27.*—Found by inquiry that a certain Major-General can not be induced to accept employment on an expedition against the savages ; shows not the least disposition for speculating in scalps. Vol. v, No. 81.

1780.—*February 3. Morristown.*—Ordered by the Commander-in-Chief to furnish a battalion of between two and three hundred men to cover the stores and public offices in Morristown, and therefore applies to Gen. Greene for barracks or some other cover for them. Vol. ii, No. 106.

WILLIAMSON, MATTHEW :

1780.—*January 16. Elizabethtown.*—Introducing Mr. Aaron Woodruff, who has been an express-rider at the above post for

WILLIAMSON, MATTHEW (*continued*) :

three months, and if possible, desires his pay. If he is not paid, would like to know the amount of his wages and how the post is to be supplied with riders. Vol. iii, No. 64.

WOODFORD, WILLIAM :

1779.—*May 18. Bound Brook.*—Complaining of Mr. Dunn's turning his horses into a small pasture already stocked with a sufficient number; knows Mr. Dunn could provide better pasture elsewhere, but he is piqued at being turned out of such comfortable quarters to give place to him (Woodford); asks that the matter be looked into. Vol. v, No. 23.

1779.—*November 25. Haverstraw.*—Will begin his march for winter-quarters on the following day, but will have to stop two days at Suffern for the purpose of issuing clothing. Preparations he has made for the arrival of the troops. Vol. ii, No. 108.

1779.—*November 29. Ramapo.*—Directed by His Excellency to ascertain where their huts are to be built, and if there is a nearer route than going round by Morristown. Has sent a detachment from each brigade, with their quartermasters, to Gen. Greene or one of his assistants for their proportion of tools. Vol. ii, No. 107.

WORTHINGTON, ASA :

1779.—*February 16. Rariton.*—In want of more assistance in his work; asks for a certain artificer to help him for a few weeks. Vol. viii, No. 110.

1779.—*February 17. Rariton.*—Requested by Col. Wadsworth to order that the slaughter-house now begun in camp may be speedily completed. Gives his reasons for haste in this matter. Wishes a large vat made at the slaughter-house to salt the meat in as soon as it is killed. Vol. iv, No. 101.

YOUNG, HENRY :

1780.—*January 31. Lancaster.*—Delay of troops occasioned by want of horses. Movements of the Second Division. Apprehensive of further delays before reaching Fredericksburg, the road between that town and Leesburg being the worst on the continent. Wishes to know how the wagoners he has enlisted

YOUNG, HENRY (*continued*):

are to be supplied with clothes; also what is the pay of a wagonmaster. Promises returns of everything in the quartermaster's department. If he has to continue defraying his own expenses, will be ruined. Carelessness and villainy of wagoners.

Vol. ii, No. 109.

- 1780.—*February 18. Fredericksburg.*—Detailed account of the march of the Virginia troops southward. Supplies on hand sufficient, except from Leesburg to Fredericksburg. Express received by Gen. Woodford from Gen. Lincoln, urging him to hasten the march of his division, as the enemy have received a reinforcement at Savannah. Troops in good health and high spirits in spite of the long march, and anxious to stop the enemy's progress.

Vol. ii, No. 110.

ZIEGLER, DAVID:

- 1780.—*January 31.*—Offering him chocolate or soap or anything in the store.

Vol. ii, No. 111.

LETTERS FROM GEN. GREENE.

ABEEL, JAMES (Col.):

- 1779.—*June 6. Ringwood.*—Acknowledging letters of the 3d, 4th and 6th. Glad to hear such encouraging talk respecting provisions. Asking for canteens and a good penknife or two. Just entering the Clove; nothing to eat there for man or beast.

Vol. vi, No. 30.

- 1779.—*June 9. Camp, Smith's Clove.*—Favorable information, concerning provisions, in his favor of the 6th inst., very pleasant hearing. Wishes flour sent as fast as it comes to Morristown. Will soon release him (Col. Abeel) from transporting stores and enable him to attend to the objects within his own particular line of duty. [Copy.] Vol. vi, No. 32.

- 1779.—*June 11. Camp, Smith's Clove.*—Acknowledging favors of 8th and 9th insts. Impossible to furnish wagons to transport the stores from Pompton to camp till general arrangement is made. Thanks him for his politeness and attention to Mrs. Greene.

Vol. vi, No. 44.

ABEEL, JAMES (Col.) (*continued*):

1779.—*June 12. Smith's Tavern.*—Mr. Lewis' suitability for the business he is employed in. Begs him to lay aside any disputes he may have with Mr. Lewis. "Private pique should ever give way to public good." Thanks him for his zeal during Mr. Lewis' illness. Vol. vi, No. 52.

1779.—*June 14. Smith's Tavern.*—Acknowledging favors of 11th and 12th insts. Desires tents and portmanteaus forwarded at once. Will investigate the matter of camp kettles.

Vol. vi, No. 68.

BARTLEY, JAMES, and SAMUEL EDMUNSTON:

1779.—*June 16. Smith's Tavern.*—Desiring a return of wagons and horses in the Maryland line, also a few necessary remarks upon their condition. Vol. vi, No. 72.

BERRY, SIDNEY (Col.):

1779.—*June 3.*—Ordering him to make certain sales and settlements connected with the breaking up of camp.

Vol. vi, No. 12.

1779.—*June 23. New Windsor.*—Acknowledging favor of 19th. Undoubtedly his right to dispose of public property left at Mr. Wallace's. General paid him (Mr. Wallace) \$10,000 for rent and for any inconvenience he was subject to from the General's residing with him; no other inhabitant received any compensation for use of his house. Requests him to dispose of the huts and other public property in the best manner for the interest of the public; better dispose of boards at private sale. Vol. vi, No. 88.

BIDDLE, CLEMENT (Col.):

1779.—*September 20. West Point.*—Col. Clarke under marching orders for South Carolina. Asks Col. Biddle to give him a supply of money to furnish him with forage on the road.

Vol. iv, No. 26.

BOWEN, EPHRAIM (Col.):

1779.—*June 6. Ringwood.*—Acknowledging letter of 30th ult. Assuring him that he will have every advantage which the other deputies enjoy. Gen. Gates' consequence shall never be injured in future by having his letters enclosed in Col. Bowen's. Money to be forwarded to him in five or six days.

Vol. vi, No. 15.

BOWEN, EPHRAIM (Col.) (*continued*):

1779.—*June 13. Smith's Tavern.*—Acknowledging his favor of 8th inst. with enclosed petition, which shall be sent to Gen. Sullivan. Reasons for thinking he will not grant it. Benefits allowed captors. Vol. vi, No. 61.

1779.—*June 28. New Windsor.*—Acknowledging favor of 21st inst. Has consulted Gen. Washington upon the subject of the Rhode Island expedition; says he knows of no such expedition either having been ordered by Congress or otherwise authorized. Warns him, therefore, not to take a single step without written orders to justify his conduct; this will secure him in the future. Vol. vi, No. 92.

BROWN, WILLIAM (Dr.):

1779.—*June 27. Smith's Clove.*—Orders from Gov. Livingston and Gen. Washington to remove the sick out of the barns of the inhabitants of New Jersey and to apply to Col. Berry to provide them with quarters in the barracks and public buildings in Pluckemin. These accommodations very inconvenient and improper for the purpose, but necessity compels their removal there. Vol. vi, No. 94.

BRUEN (Capt.):

1779.—*June 2. Camp.*—Ordering him to collect and send to Pluckemin all the boards and materials, etc., from the barracks, and then follow the army. Vol. vi, No. 13.

BUTLER, (Col.):

1779.—*June 20. Smith's Tavern.*—In receipt of his favor that morning. Horses with pack-saddles ordered to attend his party. Vol. vi, No. 74.

CHASE, THOMAS (Col.):

1779.—*June 11. Smith's Tavern.*—Acknowledging favor of 31st ult. Refuses responsibility in settling Mr. Pincheon's affair. Want of attention shown by the States to the business of the department. Vol. vi, No. 49.

1779.—*June 30. New Windsor.*—In receipt of alarming letter from Board of War, relative to a quantity of lead failing to come on from Boston; it must be got on at any cost; a failure may be attended with dreadful consequences. If unable

CHASE, THOMAS (Col.) (*continued*):

to procure teams, must call on Mr. Smith of Springfield, Mr. Hubbard of Hartford, for assistance. Admires Gen. Heath's tent; wishes four or five like it. Vol. vi, No. 109.

- 1779.—*September 29. West Point.*—Sorry to inform him that there is great complaint against him in the Commissary General's department for want of teams to bring forward the public stores to West Point; does not understand the reason of this, the roads being good and teams plentiful. Sets forth the serious harm resulting from any delay in hurrying forward the stores. Vol. iv, No. 27.

CLINTON, GEORGE (Gov.):

- 1779.—*June 28. Smith's Clove.*—Col. Hay in immediate want of about \$100,000; begs the Governor to loan that sum to the department, promising to replace it in a week or two in the treasury. Most of the money to be appropriated for the Indian expedition. Col. Hay will wait upon him for an answer. Vol. vi, No. 97.

COX, JOHN (Col.):

- 1779.—*June 6. Ringwood.*—Enemy's designs difficult to interpret from his movements; they have fallen back to King's Ferry again, after being in full view of fortifications at West Point, without attempting to make any impression upon the works. Loss of a little fort by Gen. McDougal on the east side of King's Ferry. Enemy's purpose to cut off their communication with the Eastern States. Difficulty of subsisting their cattle and keeping up the necessary transportation through such a barren country. Plans for subsisting the troops in case West Point is invested, and for transporting provisions and forage. Necessity for removing clothing at Middlebrook as fast as possible to somewhere back of Morristown.

Vol. vi, No. 27.

- 1779.—*June 9. Camp, Smith's Tavern.*—Acknowledging favor of 4th inst. Will rest satisfied in full expectation of plentiful supply of stores. Will lay his letter before the General in order to have an officer appointed to the command of the watermen; conflicting accounts from that quarter. Directions as to forwarding the stores back into the country from Middlebrook.

COX, JOHN (Col.) (*continued*):

Enemy making no attempt on West Point, but fortifying King's Ferry. Vol. vi, No. 37.

1779.—*June 14. Smith's Tavern.*—Business of enlisting wagoners must be pursued with more vigor; if they cannot be had at the present rate of payment, it must be raised.

Vol. vi, No. 65.

1779.—*June 20. Smith's Tavern.*—Desiring him to make such arrangements at Middlebrook as will render Col. Thomson's further stay there unnecessary. Will change position again immediately if enemy fall across the river. Needs of the Eastern army.

Vol. vi, No. 80.

DEPUTIES OF THE QUARTERMASTER'S DEPARTMENT [Circular Letter]:

1779.—*June 16. Smith's Tavern.*—Enclosing a copy of a letter from Hon. John Dickinson, Roger Sherman, Nathaniel Scudder, Esqs., members of Congress, a committee appointed for superintending the staff department of the army. Explains the design of this letter and also the returns expected of them in reply. Committee anxious to have this information without the least unnecessary delay.

Vol. vi, No. 73.

DICKINSON, JOHN, AND OTHERS:

1779.—*June 13. Smith's Tavern.*—Acknowledging favor of 7th inst. Promising to furnish them with the returns and information concerning the plan and economy of the quartermaster's department. His health on the decline.

Vol. vi, No. 58.

FINNIE, WILLIAM (Col.):

1779.—*June 21. Smith's Tavern.*—Acknowledging favor of 29th ult., and likewise a letter from Mr. Webb respecting the propriety of Col. Finnie's conduct. Will lay the letter before Gen. Washington, in order to disabuse his mind of any prejudice. Requests punctuality in the returns.

Vol. vi, No. 85.

FURMAN, MOORE:

1779.—*June 6. Ringwood.*—Detailed orders concerning the forwarding of provisions on the Sussex route.

Vol. vi, No. 16.

1779.—*June 9. Camp, Smith's Clove.*—Acknowledging favor of 5th inst. Will endeavor to send back teams to bring on the

FURMAN, MOORE (*continued*):

provisions. Repeats his plan of dividing the route into stages. Advises removing stores at Pluckemin to Susquehanna or Pittstown, should enemy invade New Jersey. Grain or no grain, the provisions *must* come on to the army; if necessary, the cattle must eat grass. Vol. vi, No. 38.

- 1779.—*June 12. Smith's Tavern.*—Acknowledging favor of 9th inst. No objections to Mr. Lewis, if he is satisfactory in his work; Mr. Abeel's and Mr. Lewis' disagreements not a sufficient reason for dismissing the latter. Account of measures he adopted during Mr. Lewis' illness. Plan for facilitating the transportation of stores. Situation disagreeable, owing to want of money. Vol. vi, No. 53.

- 1779.—*June 21. Smith's Tavern.*—Acknowledging favor of 12th inst. Inconvenience of not knowing what the next movement will be. Even the General, although acting on the defensive, cannot determine this point, for it all depends on the enemy's movements. Wants pasture for horses provided along the route from Middlebrook. Herculean task on their hands. Afraid good news from the South will turn out to be false. Vol. vi, No. 86.

- 1779.—*June 24.*—Accepting his resignation as deputy quartermaster-general for the State of New Jersey. Sorry that the late oppressive law in his State, dangerous to the rights of citizens as well as to the privileges of officers, has forced him to this measure. Begs him to continue to manage the business in his private capacity until he can appoint another, or until Congress can remedy the effects of this unprecedented measure. Vol. vi, No. 89.

GIBSON, GEORGE (Col.):

- 1779.—*September 27. West Point.* Acknowledging his letter of the 15th inst. with its inclosure. Maj. Blodget, not having acquainted him with his borrowing a sulky of Col. Gibson, has written to him on the subject, asking certain things about it, to enable him to settle with Col. Gibson.

Vol. iv, No. 36.

GREENE, JACOB:

- 1779.—*June 6. Ringwood.*—Order to furnish Col. Bowen with a quantity of axes. Vol. vi, No. 29.

HARRISON, ALEX. TURNER (Col.):

- 1779.—*December 6.*—Desiring him to engage a hundred wagoners for one year, and telling him the terms he is to make.
Vol. xii, No. 6.

HARVEY, JOHN:

- 1779.—*September 29. West Point.*—Acknowledging favor of 1st inst., recommending the appointment of Mr. Rice a deputy quartermaster-general to the convention troops. Believes Mr. Rice an honest man, but neither a good accountant nor well versed in the forms of business.
Vol. iv, No. 30.

HAY, HAWKES (Col.):

- 1779.—*June 20. Smith's Tavern.*—Acknowledging letter of 16th inst. Has written to Mr. Kearse to give him every assistance in removing his family and things out of the way of the enemy. Exceedingly sorry for his misfortune; offers any assistance in his power; has Gen. Washington's approbation for what he is doing.
Vol. vi, No. 79.

HAY, UDNY (Col.):

- 1779.—*June 9. Camp, Smith's Clove.*—His Excellency, Gen. Washington, desires return of all the boats on North river. Happy to hear of his success in the removal of stores. Questions of tents and canteens.
Vol. iv, No. 35.
- 1779.—*June 14. Smith's Tavern.*—Distressed for wagoners at Middle Brook. Begs that he will send him all the carters from his side of the river.
Vol. vi, No. 69.
- 1779.—*June 19. Fishkill.*—Directions of His Excellency concerning the places at which to deposit the public stores.
Vol. vi, No. 76.

- 1779.—*June 20. Smith's Tavern.*—Acknowledging letter of 14th and 15th insts. Has sent to His Excellency for permission to assist Col. Hawkes Hay in the removal of his family. Has written the Board of War for copy of new regulations in the Barrack department, and to Congress for a copy of resolution respecting artificers.
Vol. vi, No. 81.

- 1779.—*June 28. New Windsor.*—Enclosing letter to Governor Clinton. Forgot about it, owing to press of business.
(Copy) Vol. vi, No. 101.

HAY, UDNY (Col.) (*continued*):

1779.—*June 30. New Windsor.*—Acknowledging favors of 28th, 29th and 30th. If Col. Hay cannot go on with the business, he must make application for the aid of the line. Sorry he did not succeed with Governor Clinton. However, if all other sources fail, will furnish the horses himself, out of his own much needed number. Mr. Pettit expects to send him (Col. Hay) some money soon. Vol. vi, No. 99.

1779.—*June 30. New Windsor.*—In receipt of alarming accounts from the Board of War, they having been disappointed of a quantity of lead expected from Boston; if any has arrived at Fishkill or Claverack, wishes it forwarded to Newburg.

Vol. vi, No. 103.

1779.—*July 8. New Windsor.*—Acknowledging favor of the 8th, concerning the advisability of punishing wagoners. Thinks on the whole, although some little good might result from prompt punishment, yet the ensuing alarm would produce more injury than benefit to the department.

Vol. x, No. 20.

1779.—*July 10. New Windsor.*—His Excellency's orders that the two Connecticut brigades shall be put in motion and marched down toward Norwalk. Concerning flour and port-manteaus for the brigades; also the teams to move their baggage with the greatest dispatch.

Vol. x, No. 17.

1779.—*September 27. West Point.*—Acknowledging favor of 26th inst. Urging him to employ every person he can muster to aid in getting the boats ready. Will engage the artillery artificers to assist in the business.

Vol. iv, No. 33.

HOLLINGSWORTH, HENRY (Col.), and COL. FINNIE:

1779.—*September 29. West Point Garrison.*—Informing them that they have made no return of stores since the spring. Rules of the department on the subject. Advises securing all forage as early as possible.

Vol. iv, No. 29.

HOOPER, ROBERT L. (Col.):

1779.—*June 6. Ringwood.*—Requesting his assistance in the transportation of stores from Philadelphia by way of Easton and Sussex. Enemy's design to cut off the communication with the New England States. Their particular object uncertain,

HOOPER, ROBERT L. (Col.) (*continued*):

but they have possessed themselves of King's Ferry and are fortifying there. Vol. vi, No. 17.

1779.—*June 9. Camp, Smith's Clove.*—Acknowledging favor of 6th inst. His ability to furnish 100 barrels of flour a day for two months, to be delivered at New Windsor. Question of engaging teams. Hopes Col. Hooper is mistaken with respect to the provisions not being sent up to Wyoming, as Major Claiborne's and Col. Cox's accounts on that subject are most flattering. Enemy making no attempt upon West Point, but fortifying at King's Ferry. If necessary, apply to Col. Mitchell for portmanteaus; desires twenty good express horses, with pack-saddle on each. Vol. vi, No. 33.

1779.—*June 15. Smith's Tavern.*—Acknowledging letters of 12th inst. Will do all he can to procure a supply of money for him. Pleased with the measures adopted in transportation; will make any sacrifice to insure Gen. Sullivan's success. Advises the purchase of all the grain forage possible. Thanks him for polite attention to Mr. Lott's application.

Vol. vi, No. 71.

1779.—*June 26. Camp.*—Acknowledging favor of 22d inst. Advises him to make frequent and urgent demands on the treasury for money. Glad to hear Gen. Sullivan is on the march. Hopes his success will be equal to the preparations for the expedition. Col. Mitchell directed to transport provisions from Philadelphia to Easton. Plans for procuring teams. Oats will be peculiarly acceptable. Vol. vi, No. 95.

1779.—*July 10. New Windsor.*—Acknowledging favor of 7th inst. Gen. Sullivan's difficulties. Powers of Government too feeble to execute the orders of Administration; a great misfortune if Gen. Sullivan gets his army too unwieldy for the nature of the service he is going on. Convulsions caused by the late resolution of Congress and the tax-bill of New Jersey. Enemy have plundered New Haven, burnt Fairfield, and are now ranging the country, and committing all kinds of depredations. The militia of the country make them pay the price of blood for every injury done to the inhabitants.

Vol. x, No. 15:

HUBBARD, NEHEMIAH :

1779.—*June 11. Camp, Smith's Tavern in the Clove.*—Acknowledging letters of May 26 and June 2. Poor prospects of enlisting wagoners. General plan concerning the transportation of flour from Hartford to Providence. Gen. Gates will never forgive him if supply is short, as he has but little charity for the staff department. Vol. vi, No. 46.

1779.—*June 28. New Windsor.*—Acknowledging favor of 24th inst. Col. Hay and main army greatly distressed for want of wagoners. Begs that he will pay particular attention to Col. Hay's wants. Assistance given to one another by the States. Vol. vi, No. 93.

1779.—*June 30. New Windsor.*—Board of War in urgent need of a quantity of lead. Asks him to aid Col. Chase, if he is unable to get the lead forward as soon as wanted. Vol. vi, No. 106.

1779.—*September 29. West Point.*—Acknowledging favor of 27th, and desiring him to push forward the public stores before the wet season arrives. Will write to Mr. Pettit to forward him a fresh supply of cash. Business of raising the sides of the river scows. Glad Major Starr has not left the department. Much obliged for the care Mr. Hubbard has taken of his horse ; sorry he is in such wretched condition.

Vol. iv, No. 28.

JAY, JOHN :

1779.—*June 24. Smith's Clove.*—Concerning a law passed by the Legislature of the State of New Jersey for the express purpose of taxing the assistant and deputy quartermasters-general ; likely to produce disagreeable consequences ; this arbitrary imposition cannot fail to drive out of the department every capable and trustworthy man. Mr. Furman has already resigned and Col. Cox and Mr. Pettit only wait to know the issue of a memorial presented to Congress. Should they resign, will not be responsible for the terrible consequences, neither will he take any fee or reward for his services in that event. Has heard some doubts about the holding of his command. If, by serving on the staff, he should lose the honors of the line he could never be repaid, nor could he ever serve in the department during another campaign.

Vol. vi, No. 96.

JAY, JOHN (*continued*):

- 1779.—*June 30. New Windsor.*—Acknowledging favor of the 16th. Thinks the act granting certain privileges to wagoners in the public service will be attended with many advantages; explains why he thinks the other act relating to wagon-hire impracticable. Vol. vi, No. 98.

KEARSE, BENJAMIN:

- 1779.—*June 20. Smith's Tavern.*—Orders to furnish Col. Hay with public wagons sufficient to remove his family and effects. A large covering party necessary to protect them from the enemy. Vol. vi, No. 77.

LEWIS, JOSEPH:

- 1779.—*June 12. Smith's Tavern.*—Owing to the illness of Mr. Lewis, was obliged to call in the aid of the country to forward the provisions. Now that he is restored to health, will send Mr. Abeel word to leave the business entirely to him. Begs that he and Mr. Abeel will lay aside their disputes and prejudices in order to promote the public welfare. Vol. vi, No. 51.

LEWIS, MORGAN (Col.):

- 1779.—*June 10. Camp at Smith's Clove.*—Gen. Washington has written to Gen. Clinton to be in readiness for a certain movement. Orders him to apply to Gen. Clinton to ascertain his wants. This business requiring utmost dispatch. Vol. vi, No. 41.

- 1779.—*September 27. West Point.*—Desiring him not to engage in building his store until the garrison at West Point is furnished with a sufficient quantity of boards to barrack the troops, which must be sent on with all speed. Just received an order from His Excellency, Gen. Washington, to order down all the flat-boats from Albany; not a moment's time is to be lost, as the General is in hourly expectation of Count d'Estaing's arrival, when the boats will be wanted immediately.

Vol. iv, No. 34.

MCDUGAL, ALEXANDER (Gen.):

- 1779.—*June 21. Smith's Tavern.*—Enclosing copy of letter from Col. Hugh Hughes, respecting a blacksmith; both Gen. Washington's and Gen. Parsons' opinion that he ought to be re-

MCDUGAL, ALEXANDER (Gen.) (*continued*):

moved; as the appointment was given him by Gen. McDougal, wishes first his opinion on the subject. Vol. vi, No. 84.

MITCHELL, JOHN (Col.):

1779.—*June 11. Smith's Clove.*—Acknowledging favor of 4th inst. Happy that everything is in such promising train. Supply of tents and portmanteaus needed. Concerning Lord Stirling's saddle. Policy of Congress is erroneous. Enemy fortifying King's Ferry with industry. Vol. vi, No. 45.

1779.—*June 15. Smith's Tavern.*—His situation very disagreeable owing to the condition of his tent, which is single and full of holes. Gives directions for the making of a new one.

Vol. vi, No. 70.

1779.—*June 30. New Windsor.*—Acknowledging favor of 19th inst. Asking for further supply of tents and portmanteaus. Still distressed for want of wagoners. Wages of expresses must be advanced, if they cannot be retained at the present rate. Higher pay given to the escorts creates mourning and complaint. Greater part of enemy have left King's Ferry and gone down the river.

Vol. vi, No. 107.

MORGAN, JACOB (Col.):

1779.—*June 13. Smith's Tavern.*—Acknowledging favor of 5th inst. Has no information concerning the arrival of the horses and teams. Necessity of sending punctual returns.

Vol. vi, No. 57.

OTIS & HENLEY, Messrs.:

1779.—*June 11. Smith's Tavern in the Clove.*—Acknowledging favors of 10th, 12th, 13th, 17th, 21st and 22d of May. Hears with mixture of pleasure and pain of the arrival of part of the rice and the loss of a part of the vessels. Promises to importune the Board of Treasury unceasingly. Difficulty of procuring proper supplies of cash. Mistaken policy of Congress has brought the currency into a most disagreeable situation. Much obliged for the wine purchased for the General.

Vol. vi, No. 43.

1779.—*June 28. New Windsor.*—Acknowledging favor of 12th inst. Number of suits woolen will make. No doubt of Southern news being authentic. Gen. Sullivan pushing into the

OTIS & HENLEY, Messrs. (*continued*):

Indian country—"the savages may expect to feel the resentment of injured Americans. The blood of the innocent cries for vengeance." As soon as the British receive reinforcements at New York, "the scene will open." Vol. vi, No. 91.

PARSONS, SAMUEL H. (Gen.):

1779.—*June 10. Camp at Smith's Tavern.*—Complaint by one of the artificers at West Point that the allowance of rum and provisions is insufficient, their labor being exceedingly hard. Asks him to give such orders as he deems necessary.

Vol. vi, No. 40.

1779.—*June 13. Smith's Tavern.*—Acknowledging favor of 11th inst. General not willing to let Mr. June go. Will use his little influence for Mr. Bushwell. Accounts from Philadelphia of Gen. Lincoln's having defeated the British at South Carolina, 1480 of the enemy said to be killed, wounded and taken prisoners; if true, will be a deadly stroke to the British forces.

Vol. vi, No. 54.

PATTERSON, WILLIAM (Col.):

1779.—*June 11. Smith's Tavern.*—Acknowledging favor of 29th ult. Ignorant of Gen. Washington's reasons for declining to continue him in employ, but will make further inquiry. All public property must be delivered into the Quartermaster's hands. Will consult His Excellency about settling Col. Patterson's accounts. Sees by a letter of Col. Patterson's that he has been suspected of treasonable practices.

Vol. vi, No. 47.

1779.—*June 21. Smith's Tavern.*—Acknowledging favor of 7th inst. from Cumberland. Did not propose an inferior commission out of respect for Col. Patterson's feelings. Sorry to hear that any of his deputies refused good advice; shows bad disposition and want of principle. British emissaries very troublesome, especially so in Pennsylvania. In hopes that Gen. Sullivan will give the savage tribes a severe drubbing and ruin all the Tory interest.

Vol. vi, No. 90.

PETTIT, CHARLES (Col.):

1779.—*February 4. Middlebrook.*—Pulaski's Legion and their march to Georgia. Want of money. Asks him to forward a

PETTIT, CHARLES (Col.) (*continued*):

considerable sum to Mr. Otis. Wants a quantity of duck from Navy Board. Major Eyre's duties concerning public ferries. Extraordinary contract of Col. Hooper's. Money due Mr. Livingston for the rice. Rascality of Monmouth Justices, who seek to avoid the law in respect to procuring forage. Price of pack-saddles. He (Col. Pettit) is a great favorite of Mrs. Greene's. Vol. xi, No. 7.

1779.—*June 9. Smith's Clove.*—Thinks Major Blodget's remarks concerning the destruction of the vouchers are without foundation; care taken to preserve all papers necessary to support their accounts. Appointed Capt. Erskine captain to the expresses, as the former captain had allowed intolerable negligence to prevail. Sorry the supply of money sent is so small. Messrs. Otis & Henley in pressing need of money. Enemy still at King's Ferry. Has been very unwell for several days, but able to keep about. Vol. vi, No. 100.

1779.—*June 10. Smith's Clove.*—The bearer is sent by Mr. Bowen for a large sum of money to enable Gen. Gates to make preparations for another important expedition against Rhode Island. Asks that he may be given a liberal supply, and with as much dispatch as possible, the business being important.

Vol. vi, No. 39.

1779.—*June 11. Smith's Tavern.*—Obliged to urge fresh demands for cash. Requests him to pay speedy attention to the demands of Messrs. Otis & Henley. Vol. vi, No. 48.

1779.—*June 20. Smith's Tavern.*—Concerning Mr. Thomas Greene, whose accounts he asks may be settled for certain services in the Quartermaster's department.

Vol. vi, No. 75.

1779.—*June 30. New Windsor.*—Gen. Washington has moved his quarters to New Windsor, visiting West Point nearly every day and usually requiring Gen. Greene's attendance. Also he has been one of a Board of General Officers to decide upon the cases of a number of officers escaped from the enemy and charged by them with breach of parole. The affair of the tax in New Jersey. Resignation of Mr. Furman. Sympathizes with Col. Pettit in his terribly embarrassed state. Artificers

PETTIT, CHARLES (Col.) (*continued*):

ready to mutiny for certain rights. Resolve of Congress, fixing the wages of wagon hire, totally ineffectual. Must not let army suffer for a little paltry saving. Alarming state of the fixed ammunition. Want of lead from Boston. Sir Harry Clinton has drawn off greater part of his force from King's Ferry, leaving strongly fortified garrison; has fallen down towards New York; ignorant where he is or what he is about. Will cost £300,000 to complete fortifications at West Point. No official news from South Carolina; tired of changing his opinion on the subject. Vol. vi, No. 102.

1779.—*July 24. West Point.*—Acknowledging letters of 16th and 17th insts. Late resolutions of Congress, putting the staff wholly in the power of the executive officers of each State, will give finishing stroke to their department. Discusses the alarming results if he (Gen. Greene) is to be excluded from the honors of the line; will quit the department at once; his rank preserved by Act of Congress and his claim a just one. Gov. Read and other members likely to feel the effects of that jealousy among the people, which they have been so industrious in promoting. Vol. xi, No. 5.

1779.—*July 29. West Point.*—Tyrannical Act of Congress concerning the staff; cannot think of it without falling into a passion; number of resignations caused by it. Late Act of Congress, of 9th inst., more mischievous in its consequences. Unless repealed, Col. Hay and all those acting under him will resign. Staff painted in such black colors by Congress that the resulting distress among the people makes all business extremely difficult; has written his sentiments to Congress, so that if they do sin, it will be with their eyes open. Any action taken respecting Col. Coxe's resignation? Settling of accounts an important matter. Col. Biddle must have money; as everything depends upon forage department; he also is determined to resign. Lord Cornwallis just arrived from England to take command of the British army. Sir William Erskine gone home. British army drawing all their forces to York Island; main body of American army at West Point, but a detachment covers Connecticut and another New Jersey; one under Lord Stirling, the other under Gen. Howe. Seri-

PETTIT, CHARLES (Col.) (*continued*):

ously alarmed for the Indian expedition, it progresses so slowly; thinks Tioga will terminate the affair. Raid of party of Indians under command of Brand. Duke de Sally's reputation of always being unsuccessful will be confirmed, if he allows Indians to ravage frontiers. Vol. xi, No. 4.

- 1779.—*November 6. West Point.*—Ship-carpenters from Philadelphia sent for by His Excellency's express command. Concerning the wages of these men and other workmen. Some liberal and proper provision must be made for the understaff, if they are to stay. Disbursements he has been obliged to make; short of funds himself. Requests for money from Col. Lewis and Messrs. Otis and Henley. Expenditure swelled by the preparations for the New York expedition. Has distributed the little tracts upon finance among good judges.

Vol. xi, No. 2.

- 1779.—*November 12. West Point.*—Asking that he send a supply of money by Mr. Eayers, the bearer, to Mr. Smith, of Springfield; importance of this matter. Vol. xi, No. 3.

- 1779.—*December 14. Morristown.*—Enclosing a copy of a letter from Gen. Washington, and an extract of a letter from the Board of War, by which he will see the route of the Virginia troops. Number of wagons ordered, and those still wanted, to go with the Virginia troops. Mr. Hollingsworth must have the necessary shipping provided to carry the troops from Head of Elk to Petersburg. Col. Pettit must furnish Captain Young with cash, as he is to accompany the troops on their march as deputy quartermaster-general. Vol. xii, No. 5.

PICKERING, TIMOTHY (Col.):

- 1779.—*June 20. Smith's Tavern.*—Asking for information respecting the late regulations in the barrack department.

Vol. vi, No. 82.

ROSS, GEORGE:

- 1779.—*June 13. Smith's Tavern.*—Acknowledging favor of 23d ult. Exceedingly distressed for want of carters. Has not yet received his monthly returns; must insist upon them being sent at the close of every month. Vol. vi, No. 56.

SHERIFF, CORNELIUS (Col.):

1779.—*June 9. Camp, Smith's Clove.*—Acknowledging favor of 3d inst. Recommending particular attention and great exertion in the matter of transporting stores. Resolution of Congress concerning the commission in the quartermaster's department. If he draws commission, must pay and subsist his assistant.
Vol. vi, No. 36.

1779.—*July 12. New Windsor.*—Acknowledging favor of the 4th, with certain returns. States to what extent Col. Sheriff may command Mr. Bond. Clothing for bateaux men. Enemy has plundered New Haven and burned Fairfield; their ravages inhuman and barbarous; their abuse to women exceeds all description.
Vol. x, No. 19.

SICKELS, THOMAS:

1779.—*June 13. Smith's Tavern.*—Acknowledging favor of 7th inst. The money he needed has gone on. Promises portman-teaus shall be forwarded. Will ascertain price of clothing. Wants omission rectified in his monthly return.
Vol. vi, No. 63.

SMITH, WILLIAM:

1779.—*June 13. Smith's Tavern.*—Acknowledging letters of 9th and 22d ult. and 9th inst. Unfortunate mistake in sending tents to Albany. Discovery made which will shorten the route to Fishkill thirty miles. Money lost by not having known it before. Sum of money on the way to Mr. Smith. Compliments him on his punctuality. Hopes the wine sent to His Excellency was cased, otherwise the carters would ruin the quality by adulteration.
Vol. v, No. 55.

1779.—*June 30. New Windsor.*—In receipt of alarming letter from Board of War, relative to the need of lead. Asking him to make every exertion to aid Col. Chase in getting the lead on from Boston to Springfield, otherwise the consequences may be dreadful. Barrack-master department now under charge of Quartermaster-general.
Vol. vi, No. 108.

STARR, JOHN (Maj.):

1779.—*June 14. Smith's Tavern.*—Has heard of a little dispute between Col. Hay and Mr. Starr, respecting the distance each should cart the provisions. Remonstrates with him for this

STARR, JOHN (Maj.) (*continued*):

narrow point of view, pointing out how injurious it is to the public interest. New York State heavily handicapped by the enemy on the sea-coast and the savages on the frontier.

Vol. vi, No. 67.

- 1779.—*September 27. West Point.*—Thinking that doubtless his feelings were hurt at the complaint made by Mr. Merchant not long since, encloses copies of some of the letters which passed on that occasion, showing that he (Greene) did not neglect to do justice to Maj. Starr's reputation.

Vol. iv, No. 35.

STEEL, ARCHIBALD:

- 1779.—*September 29. West Point.*—Taking him to task severely for not sending any returns, and for not carrying out punctually the orders of Col. Broadhead.

Vol. iv, No. 31.

STEPHENS, WILLIAM:

- 1779.—*July 12. New Windsor.*—Acknowledging favor of 8th inst. and accepting the offer of his services. Recommends particular care in pasturing the horses, also an application to Col. Hooper for smiths. Must apply to a magistrate in case inhabitants refuse to deliver up any public property in their hands.

Vol. x, No. 14.

SULLIVAN, JOHN (Gen.):

- 1779.—*June 6. Ringwood.*—Acknowledging favor of 2d inst. Will see that he has the necessary tents. Gen. Clinton wandering up and down the North river. Loss of a little fort on the east side of King's Ferry by Gen. McDougal. Return of the British troops from Virginia. Enemy's intentions in fortifying that side of King's Ferry. Wishes Gen. Sullivan to begin his operations, as that is the only glorious part of the campaign which he has any expectations from.

Vol. vi, No. 28.

- 1779.—*June 13. Smith's Tavern.*—Enclosing a petition sent by Mr. Ephraim Bowen; desires his orders on the subject. Nothing new. Enemy still fortifying King's Ferry.

Vol. vi, No. 59.

- 1779.—*June 21. Smith's Tavern.*—Speaking of the great hopes placed in the expedition directed by Gen. Sullivan; has done

SULLIVAN, JOHN (Gen.) (*continued*):

everything, therefore, in his power to give dispatch and success to his measures; has Gen. Sullivan's glory and honor very much at heart. Nothing new. Gen. Clinton at King's Ferry. Good news from southward likely to prove untrue.

Vol. vi, No. 83.

THOMPSON, JAMES (Col.):

- 1779.—*June 9. Smith's Tavern in the Clove.*—Acknowledging favors of 5th, 6th and 7th inst. Wishes him to continue where he is, until the teams are all made up and the stores got away; also to apply to Mr. Berry for necessary teams. Does not want a great many stores lodged at the Park; too much exposed to an incursion of the enemy.

[Copy.] Vol. vi, No. 34.

- 1779.—*June 14. Smith's Tavern.*—Difficulty in procuring wagoners. Surprised at Col. Mitchell's sending teams without teamsters, as they are quite useless. Desires him to come to camp as soon as the stores are removed from Middlebrook.

Vol. vi, No. 66.

- 1779.—*June 20. Smith's Tavern.*—Acknowledging favor of 15th inst. Proper pains not taken to procure wagoners. Will put the business on another footing in future. Requests him to come immediately to camp as soon as he shall be relieved by Col. Cox or his substitute. Number of teams he must bring on with him.

Vol. vi, No. 78.

- 1779.—*July 13. New Windsor.*—Demand for flour to the west of North river greater than it has been for some time. Finds it necessary to increase the transportation of flour from Chester to Newburg, therefore begs him to order twenty teams to Chester.

Vol. iii, No. 65.

WADE, FRANCIS (Col.):

- 1779.—*September 29. West Point.*—Requesting him to send in returns immediately, as he has received none since March.

Vol. iv, No. 32.

WAR, BOARD OF:

- 1779.—*June 30. New Windsor.*—Acknowledging favor of 25th inst. Will use every exertion to forward the lead to Boston. If he had been informed of the business earlier, this crisis might have been avoided.

Vol. vi, No. 104.

WASHINGTON, GEORGE (Gen.):

- 1779.—*June 7.*—Asking for a new order to prevent each regiment having so many wagons, and to keep women and lazy soldiers from riding in them. Vol. vi, No. 31.
- 1779.—*June 11. Smith's Tavern.*—Desires the artificers will not be used in laying floors to tents; they are needed elsewhere, and also the floors will increase the baggage of the army, the officers being loth to leave them behind. Vol. vi, No. 50.

WEISS, JACOB:

- 1779.—*June 3.*—Ordering him to keep certain stores for the army and to forward others to Pluckemin, and then follow the army. Vol. vi, No. 14.
- 1779.—*June 10. Camp, Smith's Clove.*—Orders concerning the transportation of stores; let proper assortment come on at once to the army. Asks that an oil cloth he left behind may be forwarded. Vol. vi, No. 42.
- 1779.—*June 13. Smith's Tavern.*—Acknowledging letter of 9th inst. Tents for Gen. Sullivan wanted at once. Vol. vi, No. 60.

UNKNOWN CORRESPONDENTS:

- 1779.—*February 17. Raritan.*—Not possible to carry on a Canada expedition with any prospect of success. Countermands certain orders and renews others. Vol. iv, No. 37.
- 1779.—*June 13. Smith's Tavern.*—His Excellency will write concerning an officer to superintend the bateaux service. No blame due him on account of the teams not coming in faster. Hopes to feed the army without much difficulty. Comparative power of Pennsylvania and New Jersey to furnish teams. Col. Hooper engaged in arranging this matter upon the Sussex route. Flat-bottom boats to be repaired. Treasury Board responsible for the unmerited disgrace that the department has been loaded with. Tents needed. Suffering with pain in his breast owing to constant writing; hopes he will relieve him soon. Vol. vi, No. 62.
- 1779.—*June 30. New Windsor.*—Setting forth the necessity of keeping and transmitting accounts of the time the expresses ride public horses, in order to prevent certain impositions. Necessary for every assistant to have a copy of this order. [Circular letter.] Vol. vi, No. 105.

UNKNOWN CORRESPONDENTS (*continued*):

- 1779.—*July 14. New Windsor.*—Acknowledging letter of 8th inst. enclosing returns, etc. Repeats the necessity of keeping no one on pay whose services can possibly be dispensed with. Arrival of Glover's Brigade will be a timely one, Connecticut being in deepest distress. Asks for certain accounts. Refers him to Maj. Olney for news. Vol. x, No. 16.

[Fragment of a letter]:

Number of men to be employed in the neighborhood of the navigable rivers in the Middle and Southern States. Duties of those employed in the Western expedition. Committee desires estimate of the cost for one year of such an army. Vol. x, No. 59.

MISCELLANEOUS LETTERS.

ABEEL, JAMES F. (Col.), to BROWN, BENJAMIN:

- 1779.—*June 7. Morristown.*—Has received and followed Gen. Greene's directions. Number of wagons sent forward. No forage to be had except hay. Vol. vii, No. 46.

To CLAIBORNE, RICHARD (Maj.):

- 1779.—*January 14. Morristown.*—Acknowledging his favor with Col. Livingston's enclosure. Desires Mr. Weiss to forward all the old axes as soon as possible. Vol. ix, No. 1.

To FORSYTH, ROBERT (Col.):

- 1779.—*January 18. Morristown.*—Asking him to give a fresh horse to bearer, who is going express to His Excellency with a letter of great importance. Vol. viii, No. 2.

- 1779.—*January 23. Morristown.*—Will send a number of sleds, more on Monday; also Lord Stirling's carry-all and one of the same kind for Gen. Greene, if he wishes it. Will forward the glass and an invoice of goods sent.

Vol. iii, No. 2.

- 1779.—*February 3. Morristown.*—Acknowledging favor of 1st inst. enclosing letter for Miss Livingston. Promising to send certain articles. Vol. ix, No. 2.

TO FORSYTH, ROBERT (Col.) (*continued*):

- 1779.—*February 7. Morristown.*—Acknowledging favor of 6th inst. Promising to send him his pair of boots and the candlesticks in a few days. Sends by bearer twelve private locks, as Gen. Greene will no doubt take a fancy to them. Hopes the General is in camp, as he needs money and can do no business without it. Vol. iv, No. 1.

TO MAXWELL, WILLIAM (Gen.):

- 1779.—*May 6. Morristown.*—Question of tents. Forbidden to issue horsemen's tents without particular orders from Gen. Greene. Has an elegant marquee ready for Gen. Maxwell. Vol. vii, No. 31.

TO OLNEY, GEORGE:

- 1779.—*May 14. Morristown.*—Sending the long-wished-for returns by the bearer, Mr. Maerschalk. Has completed Gen. Maxwell's order. Vol. vii, No. 94.

TO UNKNOWN CORRESPONDENT:

- 1779.—*January 18. Morristown.*—Sending him six sleds of different sorts and asking his opinion of them. Entire sixty will be completed in a day or two. Vol. viii, No. 1.

ADAMS, S., to COMMISSIONERS OF THE NAVY BOARD:

- 1779.—*February 1. Philadelphia.*—Asking that, if the sail-duck can be spared without prejudice to the navy, they will furnish Gen. Greene with 400 pieces. [Copy.] Vol. iv, No. 81.

BARNES, JOHN (Lieut.), to CAPT. GRAY:

- 1779.—*April 1.*—Order to mend the bearer's gun. Vol. xii, No. 105.

BARTLEY, JAMES, to ANY ARTIFICER:

- 1778.—*December 20.*—Orders to shoe three horses belonging to Gen. Muhlenberg's brigade. Vol. xii, No. 93.

BELDING, SIMEON (Col.), to GEORGE OLNEY:

- 1779.—*November 7. Camp, Drake's House.*—Acknowledging his note by Major Troop. Will do all in his power to furnish the forage ordered by Gen. Greene. Vol. ix, No. 15.

BETTS, WILLIAM M., to COL. UDNY HAY :

- 1779.—*October 10. Fishkill.*—Acknowledging his favor of the 6th inst., but unable to concur in sentiments with the other gentlemen, his assistants. Honored by his approbation, and has given his arguments the strictest attention, but does not think it right to make a complete sacrifice of his interest. Unfair treatment they have received. Gratitude and friendship for Col. Hay, and should he be embarrassed by his resignation on November 10, he promises “to continue some little time after, but his services shall be rendered gratis, on the score of friendship, not as a public officer.” Vol. iii, No. 58.

BETTS, WILLIAM M. (and other assistant deputy quartermaster-generals), to COL. UDNY HAY :

- 1779.—*October 5. Fishkill.*—A protest against their treatment in the department. Comparing their present state with that upon which they first undertook the work, and their pay and privileges with those of other officers. Announcing their willingness to serve until November 10, at which time they are fully determined to resign, unless some provision is made adequate to their services. Vol. iii, No. 54.

- 1779.—*October 8. Fishkill.*—Acknowledging his favor of the 6th inst., and expressing pleasure at his approbation of their principles and conduct. Their attachment to their country and their obligations to him, have decided them to remain until the close of the campaign ; but they earnestly request his influence in obtaining a more generous establishment for the department. Vol. iii, No. 56.

BEVAN, DAVIS, to COL. PETTIT :

- 1778.—*October 24. Philadelphia.*—Has written several times begging him to honor an account ; as he really needs the money ; will take his compliance as a singular favor. Vol. viii, No. 6.

BIDDLE, CLEMENT (Col.), to MAJOR ICHABOD BURNET (aide-de-camp to Gen. Greene) :

- 1778.—*November 8. Quaker Hill.*—Concerning the supply of grain in various quarters. Vol. x, No. 45.

BIDDLE, OWEN, to COL. PETTIT :

- 1779.—*May 18. Philadelphia.*—Reluctant to make such large demands on him, but it is absolutely requisite that they be furnished with the enclosed estimate. No forage can be procured without money, and no horses supported without forage.

Vol. v, No. 20.

- 1779.—*November 5.*—Copy of this letter enclosed to the President of Congress by Col. Pettit, to show the demands upon the department and the lack of money to meet them.

[Copy.] Vol. ix, No. 101.

BINNEY, B. (Dr.), to MAJOR STORY :

- 1779.—*May 19. Somerset.*—Has made an estimate of the number of buildings needed for the sick, and finds that three large barns will be necessary, as near Somerset Court-house as possible.

Vol. v, No. 42.

BLAND, THEODORIC (Col.), to CAPT. RICE :

- 1779.—*April 23. Headquarters, Charlottesville.*—Col. William Finnie failing to appear as ordered, requests and authorizes Capt. Rice to take upon himself the management of the Deputy Quartermaster-General's department, until Col. Finnie shall appear or give reasons for his non-appearance. Giving him minute instructions as to his duties in the department.

Vol. v, No. 45.

BOSTWICK, ANDREW (Col.), to COL. CLEMENT BIDDLE :

- 1779.—*November 7. Red Hook.*—Acknowledging letter of 3d inst., and expressing the utmost pain that the garrison at West Point are suffering for want of forage. Reasons for this state of things. Pressing need for money.

Vol. iii, No. 10.

BOWEN, EPHRAIM, to MAJOR ICHABOD BURNET :

- 1779.—*February 16. Providence.*—Acknowledging favor of 9th inst. Enough tents and knapsacks and cooking utensils for the troops at Providence. Sends return of stores.

Vol. iv, No. 8.

BOWEN, EPHRAIM (Col.), to OLNEY, GEORGE :

- 1779.—*May 10. North Kingston.*—Acknowledging letter with returns and enclosures. Mr. Timmins embarked on ship bound for New York. Gen. Gates is with him [Bowen]. Pestered for money from every quarter. Little matters of business.

Vol. vii, No. 62.

BROWN, BENJAMIN, to MAJOR ROBERT FORSYTH :

- 1779.—*January 29. Newark.*—Would have returned to camp long before; only waiting on account of expectations from over the water. Refers to business with a certain person, a friend of Major Forsyth's, whom he has not yet been able to see. Vol. viii, No. 10.

BROWN (?), WILLIAM (Lieut.), to CAPT. GEORGE GRAY :

- 1779.—*April 7.*—Asking him to repair the bearer's gun. Vol. xii, No. 75.

BURNET, ICHABOD (Major), to MAJOR ROBERT FORSYTH :

- 1779.—*January 23.*—Asking him to forward the enclosed papers to his brother at Newark, as they are wanted for a particular purpose. Vol. iii, No. 17.
- 1779.—*January 27. Philadelphia.*—Sending him his bridle by bearer. Expects to leave Philadelphia by the following Friday. Vol. viii, No. 11.

TO PETTIT, CHARLES (Col.) :

- 1779.—*February 9.*—Gen. Greene anxious about returns from office at Philadelphia, and requests him to forward copies of all returns as soon as possible. Vol. xi, No. 6.

CALDWELL, JAMES (Col.), to unknown correspondent :

- 1778.—*September 27. Springfield.*—Account of the appearance of the enemy with eleven or twelve sail of brigs, sloops and row-gallies heading toward Crain's Ferry. The General not being able to see their rear, and supposing they were coming in force, called all the militia out and moved down in force to receive them; but they turned and stood up Newark bay and then up Hackensack river; they had some supplies for the troops there and will also render that river a defence by their armed vessels. They have in their power near one-half of Bergen county. Surmises as to their intentions, and detailing their various movements. Vol. iv, No. 11.

CHALONER, JOHN, to JEREMIAH WADSWORTH :

- 1779.—*October 27. Ringwood.*—Injurious practice of feeding horses with wheat in straw; mentions the matter that measures may be taken to prevent it. Vol. viii, No. 103.

CHASE, THOMAS, to GEORGE OLNEY :

- 1779.—*October 4. Boston.*—Acknowledging favor of September 18, and glad his accounts are satisfactory. No interference in his department by the Executive power of the State. For a long time has been amused by Count d'Estaing being on the coast, but begins to despair. Vol. iii, No. 26.

CLAIBORNE, ROBERT, to COL. ABEEL :

- 1779.—*September 13. West Point.*—Acknowledging his favor of 6th inst. to Gen. Greene. A Court of Inquiry ordered at Morristown to investigate the business and charges between Col. Claiborne and Mr. Lewis. Desires him to pay Mr. Collis his wages. Vol. iv, No. 24.

TO BETTS, WILLIAM M. :

- 1779.—*September 17. West Point.*—Acknowledging his favor of same date. General wishes him to propose to the shipwrights to continue a week longer upon their present standing ; but if they decline, to discharge them. Vol. iii, No. 47.
- 1779.—*September 19. West Point.*—Acknowledging favor of 18th inst. The General only wants the carpenters engaged for one week more. If at the end of that time, no further directions are received, he can discharge them. Vol. iii, No. 48.

TO BURNSIDE, — :

- 1779.—*June 21. Smith's Tavern.*—Acknowledging letters of the 14th and 15th insts. to Gen. Greene. Certain directions from Gen. Greene relative to the route the provisions must take. Vol. vi, No. 87.

TO COX, JOHN (Col.) :

- 1779.—*September 16. West Point.*—The army is to be cantoned and the greater part to quarter at the Scotch Plains. Gen. Greene requests him to have 200,000 feet of boards deposited at some convenient place in that neighborhood with dispatch and secrecy. Vol. ix, No. 26.
- 1779.—*November 5.*—Directed by Gen. Greene to write him to procure the cloth for the bags, but not to have them made until he hears further from the General. Vol. viii, No. 16.

CLAIBORNE, ROBERT (*continued*), to GRAY (Capt.):

(No date.)—Order to shoe Dr. Thatcher's horse.

Vol. xii, No. 90.

To HAY, UDNY (Col.):

1779.—*November 5*.—By Gen. Greene's order, writes to direct him to send all the unemployed carpenters to West Point and to send Capt. Mills with his company to King's Ferry.

Vol. ix, No. 27.

1779.—*November 15. West Point*.—In Gen. Greene's behalf, acknowledges his favor of same date enclosing copy of a letter from Col. Van de Burgh, respecting the wages of express-riders. They are allowed \$16 a day, find their own horses and bear their own expenses. Demand for boards at King's Ferry.

Vol. viii, No. 18.

To STODDERT, BENJAMIN:

1779.—*September 13. West Point*.—Directed by Gen. Greene to acknowledge his favor of the 18th inst. with the enclosed resolve of Congress for erecting barracks at Rhode Island. The General has given the necessary orders agreeable to the resolution.

Vol. viii, No. 15.

To THOMPSON, JAMES (Col.):

1779.—*September 29. West Point*.—In answer to his favor to Gen. Greene, dated the 30th of September, asks him to furnish the twelve wagons and teams called for from the line of the army or from the Commissary's department.

Vol. iv, No. 12.

1779.—*November 11. West Point*.—Directs him, by Gen. Greene's orders, to be at Fishkill the following day to attend a horse sale, and to purchase wagon and express horses. Has referred the Auditor of Accounts to him for two teams.

Vol. viii, No. 17.

To WEISS, JACOB:

1779.—*September 13*.—Acknowledging favor of the 3d inst. Directions regarding the returns of stores.

Vol. ix, No. 25.

CLAY, M., to CAPT. GRAY:

1779.—*April 7*.—Orders to repair Charles Carter's gun.

Vol. xii, No. 73.

CLINTON, CHARLES (Capt.), to COL. MORGAN :

- 1779.—*April 20. Fort Cumberland.*—Has opened the road from the above place to Turkey Foot, except four or five miles. Money needed to pay hands. Enclosing survey.
[Copy.] Vol. vii, No. 20a.

CLINTON, GEORGE (Gov.), to HAY, UDNY (Col.) :

- 1779.—*November 8. Fishkill.*—Acknowledging favor of equal date concerning the present dispute of the artificers about their wages. If the representation made by them to the Governor is true, he thinks their demands are reasonable. How far it will be proper to comply with these demands, declines to determine.
Vol. ix, No. 55.

TO McDOWEL, JAMES :

- 1779.—*January 12. Poughkeepsie.*—Informing him that Gen. Washington will lay his case before Congress, who will no doubt order an equitable compensation for his losses.
[Copy.] Vol. i, No. 15.

COLFAX, WILLIAM (Lieut.), to MAJ. ROBERT FORSYTH :

- 1779.—*January 2. Headquarters.*—Applies to him once again for six pounds of nails and fifteen boards. Vol. viii, No. 19.

COX, JOHN (Col.), to COL. JOHN DAVIS :

- 1779.—*July 28. Bloomsbury.*—Acknowledging favor of 24th inst. Gen. Hand's extraordinary demand for horses to transport stores to Wyoming. Cannot consent to Col. Davis' complying with such a request. Stores must go by boats.
Vol. ix, No. 30.

TO GALBREATH, ROBERT :

- 1779.—*May 28. Camp.*—Requesting him to proceed with the utmost dispatch to Reading and other near-lying towns and procure as many bags as possible, get a wagon and bring them to camp.
Vol. v, No. 86.

TO PATTON, ROBERT :

- 1779.—*October 20. Bloomsbury.*—Enclosing a long list of articles wanted in the Quartermaster department for the next campaign. Begging him to get the best materials and have them ready to forward to camp by April 1.
Vol. ii, Nos. 2 and 3.

COX, JOHN (Col.) (*continued*), to UNKNOWN CORRESPONDENTS:

- 1779.—*July 8. Philadelphia.*—Circular letter to the deputies in the Quartermaster department to the westward of the Delaware, asking for a general return. Vol. x, No. 18.

CROGHAN, WILLIAM (Major), to CAPT. GRAY:

- 1779.—*April 10.*—Order to repair the bearer's gun, which he has had for two or three weeks. Vol. xii, No. 77.
(No date.)—Order for an iron rod to be made for his port-manteau. Vol. xii, No. 110.

DABNEY, CHARLES (Lieut.), to CAPT. GRAY:

- 1778.—*October 27.*—Order to repair a gun belonging to Thomas Collier. Vol. xii, No. 91.

DAVIS, JOHN, to COL. CHARLES PETTIT:

- 1779.—*May 21. Carlisle.*—Acknowledging favor of 14th inst. with \$300,000. Demands on him for wagons and how he meets them. Scarcity of forage. Difficulty of getting drivers; need not expect one, unless they are exempted from militia duty. Vol. v, No. 47.

TO UNKNOWN CORRESPONDENT:

- 1779.—*May 10. Carlisle.*—Acknowledging favor of 2d inst. Directions respecting tents shall be strictly complied with. Alterations in pack-saddles. Frightened to death about scarcity of forage and difficulty of procuring wagons. Stores and pack-horses to be sent forward. [Copy.] Vol. vii, No. 100.

DURIE, THOMAS, to ANDREW COLDCLUGH:

(No date.)—Orders from Gen. Greene not to deliver any forage to Capt. Prior of the artillery. Vol. ii, No. 37.

EASTHAM, BRAXTON (Capt.), to CAPT. GRAY:

- 1778.—*December 6.*—Orders to shoe the bearer's horse. Vol. vii, No. 84.
1778.—*December 29.*—Order to shoe four horses belonging to Gen. Muhlenberg's brigade. Vol. xii, No. 96.

EICHELBERGER, GEORGE, to JACOB SHALLUS:

- 1779.—*March 24. York.*—Asking him to send a quantity of salt. Vol. vii, No. 7.

ERSKINE, JOHN, to MAJOR CLAIBORNE :

- 1779.—*November 8. Mr. Southerland's.*—Enclosing last weekly report. Asking him to sign the blank appointments and send them up at once. Wants to know the charges against Van Court, whom Col. Claiborne has confined ; thinks he can assist in the evidence against him. Vol. ix, No. 35.

To OLNEY, GEORGE :

- 1779.—*November 15: New Cornwall.*—Enclosing last weekly report ; asks him to tell the General that after strict inquiry into the expenses of the express-riders, he finds they will all be willing to stay at \$20.00 per day. Vol. xii, No. 9.

FERRIS, OWEN, to COL. JOHN MITCHELL :

- 1779.—*May 20. Germantown.*—Sorry for the complaint lodged against him. Insists that not a horse he purchased that year but was in good order ; but the last drove got mixed up with some horses from Lancaster, hence the mistake.

Vol. v, No. 35.

FINLEY, E. (Capt.), to CAPT. GRAY :

- 1778.—*December 6.*—Order to shoe various horses, and to put a hook on one of the cannon. Vol. xii, No. 94.

FINNIE, WILLIAM, to COL. HOLLINGSWORTH :

- 1779.—*May 12. Williamsburgh.*—Acquainting him with Capt. Barret's return from Richmond with the lead, which is now lying on James river and might as well be in the Gulf of Florida. Sorry to inform him that the First Fort in Virginia has fallen into the hands of the enemy, and with it all the shipping in the harbor of Portsmouth and Norfolk and a large quantity of stores. Town of Portsmouth in their possession, Hampton will fall next, York and Williamsburgh in great danger. Enemy landed above the fort at two different places ; garrison, being weak, evacuated. Wishes information as to the lead. Vol. vii, No. 83.

FITCH, NATHANIEL, to COL. JEREMIAH WADSWORTH :

- 1779.—*October 25. Hartford.*—Begging him to intercede with Gen. Greene to get him discharged from the Continental service, where he has worked as a blacksmith ; has a family of six, who are sick and in want, and he is unable to support them on \$1.50 per day. Vol. viii, No. 105.

FLEMING, SAMUEL, to UNKNOWN CORRESPONDENT :

- 1780.—*January 11. Paramus.*—Informing him of the disagreeable necessity Col. Hart labors under for want of forage and money.
Vol. i, No. 8.

FLINT, ROYAL, to MAJOR FORSYTH :

- 1779.—*January 1.*—Asking to let his express take the enclosed, and also to permit him to return with an account of the stores from Mr. Steel.
Vol. viii, No. 23.

FORD, JAMES (Foreman), to COL. UDNY HAY :

- 1779.—*January 8. Fishkill.*—A petition from James Ford and the men under him to the Colonel, begging that he will use his influence to raise their wages; they cannot support their families on their pay, the price of everything being so high.
Vol. viii, No. 24.

FURMAN, MOORE, to UNKNOWN CORRESPONDENT :

- 1779.—*October 4. Pittstown.*—Col. Biddle expected at Rariton the next day. Object of his visit, the sending forward of all the salt and flour in the District. Boats at Middlebrook all ready to start. Hopes the gentle folks at New York will be disturbed by their launching.
Vol. iii, No. 37.
- 1779.—*October 18. Pittstown.*—Enclosing receipt and a copy of a certificate. Account of provisions sent to Gen. Sullivan. Number of boards. Boats, harness and horses ready, but at a loss about drivers. Unable to procure any one to visit the posts and make return of commissary and other stores. Matter settled at Georgia.
Vol. iii, No. 38.
- 1779.—*October 19. Morristown.*—Concerning the expresses and their various stations. Will venture to order two or three more to be fixed at Pompton. No reason in future for letters not reaching Philadelphia with utmost safety and dispatch.
Vol. iii, No. 44.
- 1779.—*October 29. Pittstown.*—Is informed that he has heard from Col. Berry of the damage done by the enemy on the 26th inst. Uneasy at the exposed situation of the forage. Will make up horses wanted in Lord Stirling's division. Afraid to send boards to Quibbletown until there is a guard there.
Vol. viii, No. 31.

GAMBLE, R. (Capt.), to the ARMORER :

- 1779.—*October 16.*—Order to mend the bearer's ramrod.
Vol. xii, No. 69.

GIBBS, C. (Major), to MAJOR BENJAMIN BROWN :

- 1779.—*May 27. Headquarters.*—Concerning payment for two horses.
Vol. v, No. 79.

GIBSON, GEORGE, to CAPT. GRAY :

- 1778.—*December 30.*—Order to shoe his horses.
Vol. xii, No. 86.

GORDON, PETER (Major), to MR. BROWN :

- 1779.—*May 21. Trenton.*—Acknowledging favor of 20th inst. Has forwarded the boards, and will send oats and barley for use of the General's family. Difficult to get teams.
Vol. v, No. 49.

GREENE, WILLIAM (Gov.), to UNKNOWN CORRESPONDENT :

- 1779.—*January 15. Warwick.*—Acknowledging his favor by Col. Morgan. Moralizes on the appearance of luxury. Act enacted by General Assembly to force persons to sell articles possessed by them for the use of the army. Steps which should be taken by Congress to prevent further depreciation of money. William Littlefield's absence so prolonged that he has been left out in the pay abstract.
Vol. viii, No. 37.

HALE, D. (Major), to MAJOR ROBERT FORSYTH :

- 1779.—*January 29. Fishkill.*—Enclosing the two letters which he apologizes for having shamefully neglected to deliver in Philadelphia. Will send yellow ochre and tin by a return express. Character of Col. Hay's stallion.
Vol. i, No. 1.

HALL, JOHN, to MAJOR ROBERT FORSYTH :

- 1779.—*January 27. Philadelphia.*—By direction of Col. Mitchell, forwards pair of canteens for Lord Sterling.
Vol. viii, No. 71.

- 1779.—*February 1. Philadelphia.*—Asking that the enclosed letter be forwarded as speedily as possible, by a safe hand.
Vol. ix, No. 78.

- 1779.—*February 2. Philadelphia.*—Asking him to see that the bearer, Mr. Alexander White, wagon-master, delivers a box of glass to Gen. Knox.
Vol. i, No. 2.

HAMILTON, ALEXANDER, to MAJOR BURNET :

- 1780.—*January 28.*—The General considers the application unusual, and does not think it proper to comply with it.

Vol. i, No. 3.

TO UNKNOWN CORRESPONDENT :

- 1779.—*May 31. Middlebrook.*—Bidding him at the General's request to send some discreet person to ascertain the number of boats on the river.

Vol. vi, No. 18.

HANSEN, PETER, to COL. HAY :

- 1779.—*Fishkill. April 9.*—Sends him at his request an account of clothing.

Vol. xii, No. 26.

HARRISON, ROBERT H. (Col.), to UNKNOWN CORRESPONDENT :

- 1780.—*January 25.*—Requesting him to transmit to His Excellency a return of the number of expresses employed in service.

Vol. i, No. 9.

- 1780.—*February 24.*—Introducing the bearer, Daniel Halsey, an old soldier, who has a strong desire to become one of his expresses.

Vol. i, No. 11.

HAWS, SAMUEL (Col.), to CAPT. GRAY :

- (No date.)—Order to repair the bearer's bayonet.

Vol. xii, No. 88.

HAY, UDNY (Col.), to OFFICERS OF ARTIFICERS :

- 1779.—*November 2. Fishkill.*—Surprised at the ungenerous advantage taken of the public by the artificers in demanding higher wages. Desires to have a return of those who will and those who will not remain, that others may be employed in place of the latter.

[Copy.] Vol. ix, No. 52.

TO BETTS, WILLIAM M., and other ASSISTANT QUARTERMASTER-GENERALS :

- 1779.—*October 6. Fishkill.*—Acknowledging their favor and agreeing with them in the justice of their complaint. Begs them, however, not to desert their country at such a critical moment, but to remain until the close of the campaign, promising to do his best then to obtain some satisfaction for their grievances.

Vol. iii, No. 55.

HAY, UDNY, (Col.) (*continued*), to CLINTON, GEORGE (Gov.):

- 1779.—*January 20. Fishkill.*—Setting forth the difficulties of procuring teams for public service, and the unpleasant consequences of not getting a sufficient number of them. A most alarming circumstance is that the interest of the country and the interest of the army appear to be totally opposite to each other. Takes the liberty of laying before His Excellency certain hints which might, if the Legislature thought fit, aid matters. Pressing and immediate need of something being done. Vol. iv, No. 56.

To FORSYTH, ROBERT (Maj.):

- 1779.—*January 3. Fishkill.*—Acknowledging favor of 26th December, respecting artificers in Lieut. Bolton's company. Will look into their complaints and, if just, they shall be redressed. Vol. viii, No. 57.
- 1779.—*January 21. Fishkill.*—Acknowledging favor of 14th inst. Sends the tin by Dr. Latimer. Cannot recommend his black horse which, like many of the fair sex, is slow and cannot bear fatigue. Vol. viii, No. 51.
- 1779.—*February 11. Fishkill.*—The bearer, Capt. Degrave, is charged with letters to Gen. Greene, requesting a supply of cash. Wants to know if he could let the bearer have \$30,000 and forward the letters to Gen. Greene. Vol. iv, No. 62.

To JAY, SIR JAMES:

- 1779.—*February 21.—Fishkill.* Takes the liberty of making observations on the bill now under the consideration of the Legislature for regulating the impress of carriages for the army; makes certain suggestions and amendments. Thanks him and other gentlemen of the Legislature for the indulgence he has met with on this subject. Vol. iv, No. 60.

To PYNCHON, GEORGE (A. D. Q. M. G. at Springfield):

- 1778.—*May 21. Fishkill.*—Concerning the building of three scows and one bateaux. Gen. Greene has ordered the matter to be put in execution immediately. Vol. xi, No. 89.

HAY, UDNY (Col.) (*continued*), to UNKNOWN CORRESPONDENT :

1779.—*January 23. Fishkill.*—Desiring to know the number and situation of tents the recipient of this letter has drawn.

[Circular letter.] Vol. ix, No. 47.

1779.—*February 13. Fishkill.*—Detailed orders concerning returns and accounts. [Circular letter.] Vol. ix, No. 48.

HOLDRON, JOHN (Supt.), to CAPT. MITCHELL :

1779.—*October 26. Newburgh.*—Informing him of the decision of the ferrymen, who will quit work on November 17, unless they get better wages. [Copy.] Vol. viii, No. 58.

HOLLINGSWORTH, HENRY (Col.), to OWEN BIDDLE :

1778.—*December 30. Head of Elk.*—Acknowledging favor of 18th inst. Details concerning the forwarding of forage. Protests vehemently against the numerous unauthorized purchasers of forage; disastrous consequences of their conduct; asks that measures may be taken to prevent this abuse. America has baffled Britain by bravery and virtue, and in the same year is on the verge of ruin. [Copy.] Vol. vii, No. 26.

To BYAS, STANDLEY :

1778.—*November 29. Head of Elk.*—Appointing Mr. Byas assistant purchaser of forage, and setting forth his duties in that position. [Copy.] Vol. vii, No. 23.

To COX, JOHN (Col.):

1779.—*January 22. Head of Elk.*—Begging an answer to his former letters. Question of forage and flour. Entreats that the bearer, Giles, may return with a supply of cash. Asks him to acquaint Gen. Greene and Col. Biddle with the contents of his letters. Vol. viii, No. 59.

1779.—*April 30. Head of Elk.*—Acknowledging favor of the 11th of February. Discusses the question of erecting stores, the expense, etc. The \$65,000 sent by Col. Biddle exhausted in two days. Price of corn. Asks for immediate supply of cash.

Vol. vii, No. 25.

To VEAZEY, JOHN WARD (Capt.):

1778.—*October 27. Head of Elk.*—Appointing him assistant purchaser of grain and setting forth the duties in that business.

Vol. vii, No. 24.

HOLMES, BENJAMIN (Col.), to UNKNOWN CORRESPONDENT :
(No date.)—A certificate from Col. Holmes, setting forth the circumstances under which Adjutant John Smith had his horse, saddle and bridle taken, the value of which, as estimated by two of his officers, was \$375. [Copy.] Vol. iii, No. 39.

HOOPER, ROBERT LETTIS (Col.), to COL. CLEMENT BIDDLE :

1780.—*February 27. Easton.*—Has informed Col. Biddle's agent that owing to lack of money could not purchase any more grain or forage and has dismissed all his assistants. Impossibility of keeping 250 horses without money to pay for produce ; desires to be directed where to send them. All transportation through Easton to camp must cease. Involved in a debt of not less than one million pounds ! Vol. i, No. 25.

To COX, JOHN (Col.) :

1779.—*May 11. Easton.*—Acknowledging letter of 10th inst., which he laid before Gen. Sullivan. Gen. Sullivan's wishes concerning the pack-saddles. Vol. vii, No. 87.

1779.—*May 31. Easton.*—Acknowledging favor of 28th inst. concerning the road the army will follow. Pack-saddles prepared. Delay in getting the rails off. Col. Breaily, of the Jersey troops, to march the next day. The General, with troops under his command, will march by June 12, unless otherwise ordered by His Excellency. Vol. vi, No. 23.

To GREENE (Mrs.) :

1779.—*May 16.*—Presenting his respectful compliments to Mrs. Greene and begging her acceptance of one keg of butter. Vol. v, No. 9.

To PETTIT, CHAS. (Col.) :

1779.—*October 8. Easton.*—Has received an order from Maj.-Gen. Sullivan to send 100 teams to Wyoming to bring down the baggage of his army. Also urged by Col. Biddle to send great supplies of forage to headquarters. Utterly impossible to execute these and other orders without money. If not immediately supplied, must ask to be exculpated from charge of inefficiency. Vol. i, No. 23.

1780.—*January 29. Easton.*—Will send on cannon, also stores. His embarrassment for want of money ; if not supplied with

HOOPER, ROBERT LETTIS (Col.), to PETTIT, CHAS. (Col.) (*continued*):

cash or certificates, this must be his last exertion; refuses to lead the good people of that county into more distress, many having had their property seized to pay their taxes, when the States owe them tenfold. Certain offers of money made to him in exchange for certificates; cannot see why they should not send them on. Estimate of his debts. Earnestly entreats him to send £20,000 in money on Tuesday or Wednesday, as he cannot leave without it. Vol. i, No. 28.

To SHERIFF (Col.):

1779.—*November 16. Easton.*—In the strict line of Col. Sheriff's duty, not of his, to call Col. Bond to a settlement; will report the matter to Gen. Greene. Vol. ix, No. 66a.

To SULLIVAN, JOHN (Gen.):

1779.—*May 18. Easton.*—Will furnish horses to the number of 1400. Supplies needed and those at hand. Troops under Col. Spencer and Col. Courtland liable to suffer for want of teams necessary to supply and attend them; their clothing not yet arrived. Forage very scarce. Assistance of the Executive Council necessary in procuring wagons. Vol. v, No. 15.

To UNKNOWN CORRESPONDENT:

1778.—*November 9. Sussex Courthouse.*—Requesting an answer to his letter written at Trenton to Col. Pettit. Sends his sincere compliments. Vol. viii, No. 61.

HOOPER, R. L. (Col.), and OTHERS, to CONRAD CREYDER and JOHN THOMPSON (Wagonmaster-Generals):

1779.—*October 12. Easton.*—At Gen. Sullivan's request, the time being too short to send to the Supreme Executive Council for an order for teams to remove the baggage of the army to Sussex Courthouse, do by unanimous consent request that Conrad Creyder, Wagonmaster-General for Northampton County, and John Thompson, Wagonmaster-General for Bucks County, will afford every assistance in their power to furnish as many teams as Gen. Sullivan may require of Col. Hooper.

Vol. iii, No. 73.

HOSMAN, J. (Lieut.), to CAPT. GRAY:

1779.—*April 1.*—Order for a pair of stilliards (steelyards) to be mended. Vol. xii, No. 100.

HOWE, BAXTER, to MAJOR ROBERT FORSYTH :

- 1779.—*February 8. Pluckemin.*—Enclosing partial return of the stores in the brigade of artillery. Number of tents on hand and their disposition. Would be glad to know if his account is adjusted and when he may call for another supply of cash.

Vol. iv, No. 47.

TO OLNEY, GEORGE :

- 1779.—*May 12. Artillery Park.*—Offer of 500 horseshoes at \$2.50 per pair. Puts in his plea for some of the money when it shall come.

Vol. vii, No. 76.

- 1779.—*October 15.*—Asking him to give Major Shaw an order for \$3000. Reasons for making so large a demand. Why he has not sent a return of camp equipage.

Vol. iii, No. 76.

HUBBARD, NEHEMIAH, to HON. H. MERCHANT :

- 1779.—*October 26. Hartford.*—Acknowledging favor of August 31, concerning the removal of some public rod iron lying exposed at Danbury. Considers Mr. Merchant has behaved neither like a gentleman nor a Christian, but as he is a member of Congress, will forbear to make any remarks on his conduct.

[Copy.] Vol. viii, No. 104.

TO OLNEY, GEORGE :

- 1779.—*October 17. Hartford.*—Acknowledging favor of the 13th inst. It being Sunday, no coffee can be purchased, has therefore sent him thirty-weight out of his own store.

Vol. iii, No. 80a.

HUDSON, J. (Capt.), to GRAY, GEORGE (Capt.) :

- 1779.—*April 10.*—Order to repair a gun of 2d Virginia Regiment.

Vol. xii, No. 74.

HUGHES, JOHN, to UNKNOWN CORRESPONDENT :

- 1779.—*September 18. West Point.*—Enclosing weekly return of the camp equipage. Fifty-seven tents returned unfit for service.

Vol. iii, No. 49.

HUNTER, WILLIAM, to SAMUEL A. OTIS :

- 1779.—*February 6. Boston.*—Receipt for two silver cups which he promises to deliver to Gen. Greene.

Vol. ix, No. 87.

- 1779.—*February 7. Boston.*—Receipt for the sum of £15.

Vol. ix, No. 88.

JACKSON (Dr.), to CAPT. GRAY :

- 1779.—*April 7.*—Order to have his horse shod and four rivets made for his desk. Vol. xii, No. 79.

JOHNSON, THOMAS, to COL. HOLLINGSWORTH :

- 1779.—*May 12. Annapolis.*—Informing him of the narrow escape of Capt. Hanson, who encountered certain armed vessels in the bay and put back to Annapolis. Report by Mr. Robinson of a schooner bound to sea chased by a fleet of between twenty and thirty sail ; heard nothing further.
[Copy.] Vol. vii, No. 80.

JOHNSTON, JAMES, to ANY CONTINENTAL SMITH :

- 1779.—*April 2. Auditor's Office.*—Order to shoe his horse.
Vol. xii, No. 80.

KELSO, ROBERT, to MAJOR ROBERT FORSYTH :

- 1779.—*February 23. Morristown.*—Enclosing Maerschalk's receipt for two branches and twenty-one tin sconces, on behalf of Col. Abeel.
Vol. iv, No. 64.

KINNAN, PETER, to UNKNOWN CORRESPONDENT :

- 1779.—*October 13. Ringwood.*—Announcing that there are two bridges on the public road from Pompton to Ringwood, one of which is entirely useless and unfit for service, the other likely to break down any day ; such an accident would mean a fearful delay of provisions and other necessities. Overseers of the roads pay no attention to his requests ; wishes directions as to what to do ; makes suggestions and refers him to Mr. Erskine.
Vol. i, No. 50.

KIRKPATRICK, ABRAHAM, to CAPT. GRAY :

- 1779.—*January 22.*—Desiring his horse shod all round.
Vol. i, No. 51.

LARZELERE, ABRAHAM, and PARSELL, JOHN (foremen), to COL. UDNY HAY :

- 1779.—*November 3. Fishkill.*—Protest made by certain artificers against the prices of provisions, and also against the exorbitant wages paid to certain other men.
[Copy.] Vol. iii, No. 5½.

- 1779.—*November 3. Fishkill.*—From certain artificers, setting forth the depreciation of money, the dearness of provisions

LARZELERE, ABRAHAM, and PARSELL, JOHN (foremen), to COL. UDNY HAY (*continued*):

and the higher wages received by mechanics at other places. Have the interest of their country at heart and only desire what will reasonably support them. Vol. iii, No. 6.

LAWSON, BENJAMIN, to CAPT. GRAY:

1778.—*December 31*.—Order to shoe Mr. Carny's horse. Vol. xii, No. 85.

LEWIS, MORGAN (Col.), to COL. UDNY HAY:

1779.—*October 5*.—Promising him all the boards he can spare; but obliged to keep enough to employ his carpenters, and also to build a cooper's shop. [Extract.] Vol. iii, No. 52.

LUDWICK, CHRISTOFFAL (chief baker), to GEN. WASHINGTON:

1780.—*January. Morristown*.—Putting before His Excellency the broken-down condition of one of the ovens in the bake-house and consequent impossibility of making the required amount of bread. Begs that a committee of inspection be appointed to inspect the magazines of provisions, bake-houses, etc. Vol. i, No. 70.

LYMAN, D. (Adj.-Gen.), to JAMES RICHARDSON:

1778.—*October 29. Headquarters*.—Directed by the Major-General to inform him that the troops of the Convention will begin their march for the State of Virginia on the following Wednesday, the 4th of November, the Germans at Cambridge and the British at Rutland the same day. Detailed account of their numbers, and the means of obtaining provisions for them. Vol. i, No. 71.

MCCASHLAN, JAMES, to CAPT. GRAY:

1778.—*November 1*.—Order to mend the bearer's wagon. Vol. xii, No. 107.

1778.—*November 4*.—Order to shoe three wagon-horses belonging to Gen. Scott. Vol. xii, No. 81.

1778.—*December 6*.—Order concerning the shoeing of a horse for one of the artillery of Gen. Scott's brigade. Vol. xii, No. 92.

1779.—*April 1*.—Order to shoe one wagon-horse and to clout his wagon. Vol. xii, No. 99.

McCASHLAN, JAMES, to CAPT. GRAY (*continued*):

1779.—*April 5*.—Order to shoe three wagon-horses.

Vol. xii, No. 101.

McDOUGALL, ALEXANDER (Gen.), to COL. UDN Y HAY:

1779.—*September 3*. *West Point*.—Acknowledging favors of 31st ult. and 2d inst. Question of complaints made against Mr. Bancker of his not furnishing wood and straw for the troops and the sick.

Vol. i, No. 91.

McDOWELL, JOHN, to AN ARMORER:

Order to shoe his mare.

Vol. xii, No. 70.

MASSACHUSETTS, COUNCIL OF, to THOMAS CHASE:

1778.—*December 25*.—Directed to inform him that the Council recommend it to him to satisfy certain just demands of the Selectmen of various towns, who have as yet received no pay for providing him with teams, drivers, etc., for the use of the army.

Vol. xi, No. 88.

MATLACK, TIMOTHY, to COL. CHARLES PETTIT:

1779.—*February 20*. *Philadelphia*.—Expressing dissatisfaction on the part of Council at not receiving certified copies of the entries which they have demanded. Requests that they will be sent without delay. [On back of MSS.] Rough draft of letter from Charles Pettit to Mr. Matlack. Expressing surprise that any part of his conduct has merited such language. To avoid controversy, sends the enclosed extract. Forbears any farther remarks on the implied charges in Mr. Matlack's letter.

Vol. iv, No. 77.

MENG, CHRISTOPHER, to MAJOR ROBERT FORSYTH:

1779.—*January 6*.—Informing him that all the tents except about thirty are sent off. Received thirty axes and twenty-three log chains and expect one wagon with orderly books and shirts from Morristown.

Vol. i, No. 96.

TO GRAY, GEORGE (Capt.):

1778.—*December 14*.—Sends lock by bearer, which is in want of a spring, would like it mended at once.

Vol. xii, No. 109.

TO UNKNOWN CORRESPONDENT:

1779.—*July 31*.—Enclosing return of stores and sending back music book. Matter of tents.

Vol. viii, No. 69.

MILLAN, WILLIAM, to COL. FRANCIS WADE :

- 1780.—*February 26. Cantwell's Bridge.*—All wagons have been sent up empty—nothing to put in them. Cannot procure a single bushel of grain unless he gets some money. People alarmed at the certificates and consider them a design to defraud them—uses every argument to convince them to the contrary. Vol. iii, No. 63.

MITCHELL, JOHN (Col.), to COL. JOHN COX :

- 1779.—*November 12. Philadelphia.*—Every means taken to procure duck, etc., and stuff for blankets. Bad news from the South—hopes and expects to preserve Charleston. His disagreeable situation for lack of money. All business of the department must soon cease. Has written to this effect to Gen. Greene, Col. Pettit and the President of Congress. Steps taken to procure boards. Must he supply Col. James Abeel with everything? Empowered by Congress to send stores to Carolina by water. High price of window-glass. The alarming nature of his situation. Vol. ix, No. 98.
- 1779.—*May 29. Philadelphia.*—Report of military stores. Impossible to give Gen. Sullivan the twelve tents he has asked for. Not a moment lost in getting off the supplies. Sends that day's paper and wishes Col. Cox's opinion on the address of Congress therein contained. Vol. v, No. 97.

TO PETTIT, CHARLES (Col.):

- 1778.—*September 16. Philadelphia.*—Sends this by bearer, Mr. Henry Brooks, who has eleven teams loaded with quartermaster stores. Price of various articles needed. Will send copies of certain Resolves of Congress. Lack of blankets. Expects Col. Cox soon. Mrs. Pettit in town; their son well fixed at school; will do anything for him in his power. Concerning articles promised to His Excellency. Vol. viii, No. 70.

- 1778.—*October 22. Philadelphia.*—Bearer of this is Mr. White, who has thirteen teams loaded with quartermaster stores, etc. Amount of cash sent, together with what will be forwarded, amounts to one million dollars; hopes it will afford him some peace and satisfaction. Has sent a few message cards, some gilt, for His Excellency, Gen. Greene, etc.; the others plain,

MITCHELL, JOHN (Col.), to PETTIT, CHARLES (Col.) (*continued*):

for any gentleman. Desires to know how his Excellency likes the case with the tea equipage and bowls, etc., sent him. Health of Mr. and Mrs. Pettit excellent. Vol. i, No. 97.

1779.—*November 15. Philadelphia.*—This letter enclosed to the President of Congress by Col. Pettit. In it, Mr. Mitchell tells of the distressing situation he is in for lack of money, and refuses to be answerable for the consequences.

[Copy.] Vol. ix, No. 102.

TO WASHINGTON, GEORGE (Gen.):

1779.—*December 17. Philadelphia.*—Acknowledging favor of 14th inst. Impossible for him to be absent from Philadelphia in the present critical situation. Has given every information to a committee of Congress, in writing, respecting Maj.-Gen. Arnold; if, however, His Excellency still desires him to be present at the trial, he will immediately obey.

Vol. ii, No. 94.

TO WEISS, JACOB:

1779.—*September 20. Philadelphia.*—Amount of tents and clothing sent. Has permission from Board of War to purchase blankets; can get none in Philadelphia. Hopes Col. Abeel will not detain the teams at Morristown. Vol. iii, No. 120.

TO UNKNOWN CORRESPONDENT:

1779.—*May 21. Philadelphia.*—Acknowledging favor of 18th inst., enclosed it to Capt. Ferriss and now sends his answer to it. Thinks Capt. Ferriss always bought good horses at reasonable prices; hopes the matter will be cleared up. Matter of tents.

Vol. v, No. 43.

MORGAN, JACOB (Col.), to COL. JOHN COX:

1779.—*May 30. Reading.*—Acknowledging favor of 27th inst. Report of stores forwarded. Conflicting orders.

Vol. v, No. 98.

MORRIS, GOUVERNEUR, to COL. CHARLES PETTIT:

1779.—*May 1. Philadelphia.*—Desires that harmony and good understanding may be cultivated between the public servants and the government of South Carolina; has no doubt the

MORRIS, GOUVERNEUR, to COL. CHARLES PETTIT (*continued*):
President of that State has good reasons for detaining vessels mentioned in Mr. Livingston's letter. Directions concerning these vessels, which are to be loaded with rice. Urges prompt obedience on Mr. Livingston's part to directions which may be given to him. [Copy.] Vol. vii, No. 17.

MORRIS, LEWIS, to CHARLES BEATTY:

1779.—*September 3. West Point.*—Directed by Gen. Greene to acknowledge receipt of his favor of the 21st July, together with the enclosed returns. Vol. ix, No. 84.

TO BIDDLE, CLEMENT (Col.):

1779.—*July 26. West Point.*—Requested by Gen. Greene to ask for a return of all such officers as are employed in the forage department. Vol. ix, No. 83.

MOXLEY, RHODOM, to CAPT. GRAY:

1779.—*April 5.*—Order to repair the bearer's gun-lock. Vol. xii, No. 71.

MOYLAN, STEPHEN, to COL. NEHEMIAH HUBBARD:

1780.—*January 6. Middletown.*—Requesting him to settle Messrs. Hall & Co.'s accounts. [Copy.] Vol. ix, No. 69.

MUHLENBERG, PAUL (Gen.), to SUPT. OF ARTIFICERS:

1779.—*April 2.*—Asking to have his horse well shod, as he is going on a journey. Vol. i, No. 110.

NEVILL, JOHN (Col.), to CAPT. GRAY:

1778.—*October 4.*—Order to shoe his horse. Vol. xii, No. 108.

1778.—*December 14.*—Order to shoe his horse and charge it to his account. Vol. xii, No. 83.

OKELY, J., to COL. R. L. HOOPER:

1779.—*May 14. Bath.*—Giving information concerning a Mr. Smith, a captain in the Austrian service, and at one time in the service of the United States; also concerning two French gentlemen, his friends. Thinks there may be no reason for surmises of an evil tendency, but knows that very few foreign officers, who have left the American service in disgust or otherwise, are to be depended upon. Vol. v, No. 14.

OLNEY, GEORGE, to BLODGET, WILLIAM (Maj.):

- 1779.—*September 17. West Point.*—Requested by Gen. Greene to write and ask him about a sulky which was lent him in June, 1778. Col. Geo. Gibson, having made a demand on Gen. Greene for the value, he wishes to know the particulars of the matter. Vol. ix, No. 92.

To BOWEN, EPHRAIM (Col.):

- 1779.—*November 15. West Point.*—Directed by Gen. Greene to tell him that if the tents are sent on early in the spring, it will answer. Advice concerning destination of hay and blankets. Army will probably march for winter quarters near Basking Ridge, November 17; Mrs. Greene, Mrs. Olney and the writer will set out then for Morristown. Vol. viii, No. 72.

To CHASE, THOMAS (Col.):

- 1779.—*September 18. West Point.*—Requested by Gen. Greene to acknowledge his favor of August 9, enclosing statement of accounts for one year. In case his conduct in Quartermaster's department should be examined into, agreeable to resolve of Congress, he will immediately transmit the result of their inquiry, be it favorable or unfavorable to his wishes. Vol. iii, No. 87.

To HOOPER, R. L. (Col.):

- 1779.—*November 15. West Point.*—Directed by Gen. Greene to acknowledge his favor of 12th inst., to express his pleasure with the readiness of the people to serve the public, and to ask him to put a stop to all preparations for the expected expedition against New York. Vol. ix, No. 93.

To MITCHELL, JOHN (Col.):

- 1779.—*November 29. Morristown.*—Acknowledging in Gen. Greene's name the favor of 22d inst., and thanking him for the sugar and tea. Informs him that Col. Cox and Col. Pettit will do everything to furnish him with money. Gen. Greene constantly engaged in fixing upon the ground to hut the army. When this is settled he will make a full representation to Congress of the department's distresses, and demand relief. Gives him leave to keep Capt. Sadler's company of artificers. Vol. viii, No. 74.

OLNEY, GEORGE (*continued*) :

To OTIS & HENLEY (Messrs.):

- 1779.—*November 15. West Point.*—Acknowledging in Gen. Greene's name the favors of 28th ult. and 2d inst. There being no immediate need for the tents, asks him to fill the orders more at his leisure, thereby decreasing the public expense. Vol. viii, No. 73.

To UNKNOWN CORRESPONDENTS :

- 1779.—*July 15. Smith's Clove.*—Gen. Greene's orders that no wagoner returning from camp shall be paid any money without a special order from the Quartermaster-General's office. [Circular letter.] Vol. i, No. 112.

OTIS & HENLEY (Messrs.), to GEORGE OLNEY :

- 1779.—*October 9. Boston.*—No China cups and saucers to be had at present ; will procure the first decent set in his power. Distresses caused by the Regulating Act. Hard to starve in a land of plenty, by the rascality of a people, patriotic only in word. "High time to put an end to the war and reform manners." Vol. iii, No. 94.
- 1779.—*November 24. Boston.*—In receipt of his letter countermanding the tents. Amount of money needed for past and present disbursements. Alas, for the fate of the Southern army ; the gallant d'Estaing again baffled ; "these reflections hang like a millstone." Vol. ix, No. 91.

PARKER, JEREMIAH, to CAPT. GEORGE GRAY :

- 1779.—*January 25.*—Order to shoe the bearer's horse, belonging to Gen. Muhlenberg's brigade. Vol. xii, No. 76.
- 1779.—*January 25.*—Order to shoe the bearer's wagon horses, belonging to Gen. Muhlenberg's brigade. Vol. xii, No. 76a.
- 1779.—*February 11.*—Order to have bearer's horses shod immediately. Vol. xii, No. 106.

PARKER, RICHARD (Col.), to CAPT. GEORGE GRAY :

- 1779.—*April 3.*—Order to repair the bearer's gun. Vol. xii, No. 98.
- PARSELL, JOHN, AND OTHER ARTIFICERS, to COL. UDNY HAY :
- 1779.—*November 5. Fishkill.*—The artificers having met and discussed the offer of \$10 a day, have decided that it is too little to support themselves and families, and will therefore quit the barracks as soon as a settlement is made.

[Copy.] Vol. ix, No. 51.

PARSONS, SAMUEL H. (Gen.), to UNKNOWN CORRESPONDENT:

- 1779.—*December 8.*—Begging for a large marquee and a stove, and complaining that the room he now occupies is only eight feet square for six people, and the Justice threatens him if he remains. Vol. ii, No. 11.

PATTEN, J. (Capt.), to MAJOR ROBERT FORSYTH:

- 1779.—*January 21.*—Business of regiment conducted with utmost difficulty owing to the want of a horse. Asks that one may be given the bearer. [NOTE.—No horse. R. F.] Vol. viii, No. 82.

PATTERSON, ALEXANDER, to COL. R. L. HOOPER:

- 1779.—*May 17. Brinker's Mills.*—Asking him to send certain tools by bearer. Vol. v, No. 10.
1779.—*May 17. Brinker's Mills.*—Wagoners attending Col. Courtland's regiment have deserted, leaving their wagons standing on the road. If he cannot have six wagons supplied with forage by the next day, the troops will return for want of provisions; begs that they may be sent with all speed. Vol. v, No. 10a.

- 1779.—*May 17. Brinker's Mills.*—Large quantity of stores, but no wagons to take them to the troops. Begs him to send six or eight and save the credit of the department. No riding-horses, no forage and no cash. Vol. v, No. 12.

PATTERSON, WILLIAM, to COL. JOHN COX:

- 1779.—*February 14. Cumberland County.*—Hurried off the express, that Col. Cox may know he intends to set out for Bloomsbury the next day. Can't make long rides on account of the sore in his side and the late hurt in his ankle. Thinks himself happy to be able to render his country any service. Vol. iv, No. 89.

- 1779.—*May 19. Estherton.*—Acknowledging favor of the 11th inst. Vehemently defends himself against certain attacks upon his character, which accuse him of treasonable designs and also of intoxication; thanks Col. Cox most sincerely for his defense of his character; willing to submit to martial law for inquiry and trial; will be in town the next week, when he expects to produce such proofs of his conduct as will be ap-

PATTERSON, WILLIAM, to COL. JOHN COX (*continued*):

proved by the gentlemen in Council. Glad His Excellency was not willing to believe the report. Fears from a hint received that the force opposed to them in the "Six Nation" country is greater than is expected. Vol. v, No. 24.

PETTIT, CHARLES (Col.), to COL. JOHN COX:

1779.—*November 12. Philadelphia.*—Grievously disappointed at not getting his warrant from the Treasury Board. Clamorous demands for money on all sides. Buried Mr. Hewes on the 11th. Concerning a certain draft on Col. Cox and himself.

Vol. ix, No. 97.

1779.—*December 1. Philadelphia.*—Acknowledging favor of 30th ult. Many things lost in moving, but they still have a bed at Col. Cox's disposal. Account of a conversation between himself and Mr. Gibson, a Commissioner of the Treasury, on the subject of accounts. Congratulating him on the arrival of the schooner *Chance*, of which they hold an eighth.

Vol. xi, No. 1.

TO HUNTINGDON, SAMUEL (President of Congress):

1779.—*November 17. Philadelphia.*—Putting before him the embarrassed state of the department, owing to lack of money and the impossibility of his getting the necessary sums from the Treasury. Enclosing numerous letters to give weight to these statements.

Vol. ix, No. 100.

TO LIVINGSTON, ABRAHAM:

1779.—*April 30. Philadelphia.*—Mentioning various draughts he sent him. Gen. Greene has left Mr. Livingston's letters with him to answer. Evils resulting from detention of the vessels laden with public stores. Hopes Committee of Congress will devise some means of obtaining permission for the vessels to sail from Carolina. Promising him \$200,000 by the following week. Certain draughts of his which have been paid. Asking for estimate of the business of chartering vessels from Carolina to Boston. Business of purchasing rice.

[Copy.] Vol. vii, No. 89.

1779.—*May 1. Philadelphia.*—Enclosing copy of letter from Mr. Morris, chairman of a committee appointed by Congress to

PETTIT, CHARLES (Col.), to LIVINGSTON, ABRAHAM (*continued*):
superintend staff departments. Evident that detention of vessels is the effect of a well-considered plan rather than a design to obstruct their measures. Recommends obedience to the instructions of the Chairman of the Committee.

[Copy.] Vol. vii, No. 18.

TO REED, JOSEPH (President of the State of Pennsylvania):

1779.—*February 19. Philadelphia.*—Asking that the navigation in Chesapeake and Delaware Bays may be protected, so that supplies of forage may not be obstructed and the welfare of the army injured. Vol. iv, No. 79.

1779.—*February 20. Philadelphia.*—Proposing a plan to finally settle the question of the bridge over the Schuylkill. At the same time mentions the expense incurred by Major Eyre, Superintendent of the naval business, in raising or endeavoring to raise State vessels; is it to be repaid by the State or not? Vol. iv, No. 78.

1779.—*February 22. Philadelphia.*—Acknowledging the receipt of His Excellency's favor of equal date. Concerning a certificate of discharge which the Council desires Mr. Mitchell to send them. Defends himself and also Mr. Mitchell against the charge of "throwing delays and difficulties in the way of inquiries into the conduct of Continental officers."

Vol. x, No. 3a.

TO TREASURY BOARD, PRESIDENT OF:

1779.—*May 19. Philadelphia.*—In accordance with a desire expressed by a member of the Board, subjoins a list of such sums as are urgently demanded, and also a list of those which will be demanded in a few days. Evils resulting from the depreciation of money and the want of timely supplies of it. Necessary to pay as they go. Vol. v, No. 28.

TO UNKNOWN CORRESPONDENT:

1779.—*February 11. Philadelphia.*—Route for Gen. Pulaski's legion from York Town in Pennsylvania to Savannah, Georgia, with names of residents en route to whom to apply in case assistance is needed. Vol. iv, No. 80.

PETTIT, CHARLES (Col.) (*continued*):

To GEN. WHIPPLE:

- 1779.—*February 19* (?).—Asking the advice and direction of the Committee on the advisability of changing the plan of sending divers vessels to Charlestown in South Carolina for cargoes of rice. Since the forming of the plan, the face of affairs in the neighborhood of Charlestown has changed, and it might be prudent to make some alterations (on back of letter to President Reed). Vol. iv, No. 79.

POPE, CHARLES (Lieut.-Col.), to LIEUT. LAWSON:

- 1778.—*December 20. Middlebrook*.—Order to have his horse shod. Vol. xii, No. 89.

PORTERFIELD, ROBERT (Major), to ARTIFICER IN COMMAND:

- 1779.—*January 20*.—Asking him to repair one gun for the bearer. Vol. ii, No. 10.

POSEY, THOMAS (Major), to CAPT. GEORGE GRAY:

- 1779.—*March 13*.—Asking that one of his men will put a plate in his saddle. Vol. xii, No. 78.

PRICE, THOMAS (Col.), to UNKNOWN CORRESPONDENT:

- 1778.—*November 10. Fishkill*.—The writer is the subject of a court-martial now sitting at Fishkill landing—one of the charges alleged against him is cowardice on York Island. Sends his son to the recipient of this letter, to take down a deposition of what he can recollect of this matter. Refreshes his memory by stating the case in detail. Vol. x, No. 48.

PROCTER, THOMAS (Col.), to GEN. SULLIVAN:

- 1779.—*May 15. Philadelphia*.—Acknowledging letter of 10th inst. Will send the brigades of wagons in compliance with orders. Vol. v, No. 13.

PRYOR, J. (Capt.), to GEN. KNOX:

- 1779.—*February 20*.—Notwithstanding Gen. Knox's order respecting forage for Col. Harrison's horse, the forage-master has refused of late to issue it, the reasons for this are contained in the enclosed letter; desires him to repeat the order. Vol. ii, No. 36.

PURVIS, GEORGE (Lieut.), to CAPT. GRAY:

- 1779.—*April 10*.—Order to repair Hugh Coffin's lock. Vol. xii, No. 102.

PYNCHON, GEORGE, to COL. THOMAS CHASE :

- 1779.—*May 16. Springfield.*—Has sent his son to Col. Hughes to complete the settlement of his accounts ; he is willing to pay to the 2d of March, 1778, but thinks it more proper for Col. Chase to pay them after that date. Asks him to settle, if convenient, with the bearer, his son. Vol. v, No. 3.

REED, JOSEPH, to COL. CHARLES PETTIT :

- 1779.—*February 22. Philadelphia.*—His letter to Mr. Matlack laid before the Board ; the Secretary's letter written by the unanimous direction of the Council. Hope in future they will have less reason to complain of inattention to their requests. Differs totally with Col. Pettit as to their power of examining the quartermaster's books ; they do not ask the certificates as a matter of favor, but of clear and undoubted right. Vol. x, No. 3.

- 1779.—*May 23.*—Enclosing his letter to Gen. Sullivan and also sundry warrants only to be used in case of necessity. Reasons for disclosing the sentiments of the Council very fully to Gen. Sullivan. If their work is interfered with from resentment or any other cause, such conduct will be traced and the blame carried to the proper door. Vol. v, No. 60.

TO SULLIVAN, JOHN (Col.) :

- 1779.—*May 21. In Council, Philadelphia.*—Acknowledging favor of 11th inst. Explains why an immediate answer was not given to his request for wagons. Mr. Pettit having since made an application in form, everything shall be done as soon as possible. Objections to having any extraordinary powers vested in the Deputy Quartermasters ; one gentleman, as they personally know, employed the whole influence of his department to disgrace and overthrow the Government. Concessions they will make to Gen. Sullivan ; asks him to favor the inhabitants as much as possible ; wishing him all success. Will furnish sundry blank warrants to be used when he needs wagons. Vol. v, No. 52.

ROBERTSON (Adj.), to MAJOR CLAIBORNE :

- Without date.*—Asking him if he has the directions of the smiths, to please order his horse to be shod. Vol. xii, No. 111.

RODNEY, CÆSAR, to COL. FRANCIS WADE :

- 1779.—*December 29. Wilmington.*—Announcing the failure of the bill, with new arrangements in the quartermaster's and commissary departments. Begs him to repair to his quarters immediately, as there is a pressing need for flour. Money wanted in every branch of the staff department.

Vol. viii, No. 101.

ROSS, GEORGE, to UNKNOWN CORRESPONDENT :

- 1779.—*October 1.*—Sending a return of stores on hand and persons employed. Accounts ordered not yet finished. Six very fine teams on hand, ready to be forwarded to camp. 150 new wagons promised by April 1.

Vol. iii, No. 98.

SCANNELL, ALEXANDER, to MAJOR ROBERT FORSYTH :

- 1778.—*November 8.*—Two-horse wagon fully sufficient to haul wood, provisions, etc., and to transport those prisoners who may be shackled or unable to travel. If carelessness in the Provost-Marshall was the cause of the wagons being injured, will make him answerable for damages. [Note.] Col. Scannell was killed September, 1781, at the siege of York.

Vol. ii, No. 31.

- 1779.—*January 11.*—Desiring to know where the colliers are to be employed, and also where the horse-guard is kept, as he understands it hasn't been relieved for three months past. Suggests supplying a sentry from some other guard.

Vol. ii, No. 32.

SCHUYLER, PETER, to COL. UDN Y HAY :

- 1779.—*May 8. Albany.*—Acknowledging favor of 24th ult. Manner of court instituted at one time to try the offenses of enlisted bateauxmen and teamsters, and modes of punishment used. Discusses its expediency in the present scarcity of hands.

[Copy.] Vol. vii, No. 48.

SHAW, THOMAS, to COL. UDN Y HAY :

- 1779.—*December 4. New London.*—Concerning a box of stationery shipped to His Excellency, Gen. Washington, and which he never received. Promising to look it up and have it sent on.

Vol. ii, No. 40.

SHERIFF, CHARLES (Col.), to COL. ROBERT HOOPER :

1779.—*November 14. Pompton.*—Desired by Gen. Greene to request Col. Hooper to call Col. Bond to a settlement in the pack-horse department. [Copy.] Vol. ix, No. 66.

SHIPPEN, WILLIAM, to UNKNOWN CORRESPONDENT :

1779.—*December 31.*—An imperfect return of established hospitals. Vol. ii, No. 44.

SMITH, WILLIAM S., to ARMORER :

Without date.—Order to repair the bearer's musket.

[A fragment.] Vol. xii, No. 68.

STARR, EZRA, to GEORGE OLNEY :

1779.—*October 13. Danbury.*—Agreeable to request, has sent to New Milford for the box of paper belonging to His Excellency and will forward the same to the care of Col. Hay. Vol. iii, No. 108.

STEEL, ARCHIBALD (Col.), to CLEMENT or OWEN BIDDLE :

1779.—*November 5.*—Extract enclosed by Col. Pettit to the President of Congress to show the distressing situation of the department for lack of money. Vol. ix, No. 101a.

To PETTIT, CHARLES (Col.) :

1779.—*January 28. Pittsburgh.*—Acknowledging the amount of the last draft made by him. Account of the trouble between him and Gen. McIntosh. Acquitted by a general court-martial of every charge against him; notwithstanding which, the General still keeps him under arrest; if this continues, the post must fail for want of provisions. Recommending certain gentlemen as disinterested judges of his and Gen. McIntosh's conduct. Vol. iv, No. 92.

STEWART, CHARLES, to COL. ROBERT FORSYTH :

1779.—*February 7. Camp, Paramus.*—Sending various returns. Vol. iv, No. 93.

To UNKNOWN CORRESPONDENT :

1779.—*February 26. Camp, Paramus.*—Enclosing various returns of stores and tents, and riding-horses. Directed by Mr. Weiss to draw the necessary stores from Morristown instead of Middlebrook. Vol. ii, No. 54.

STOCKTON, ROBERT, to MOORE FURMAN :

- 1779.—*October 27*.—Acknowledging his favor by Mr. Yard. Enemy landed at Sandy Point, October 26, 1779, at midnight; marched to Quibbletown, destroyed stores there, went to Rariton and destroyed boats and the Dutch church in that place, then to Millstone; released ten prisoners from gaol and set fire to courthouse. Near Brunswick, encountered party of our people, who killed their commander's horse and took him prisoner. The rest of the enemy went off towards South Amboy, where they fell in with Capt. Voorhees, who was obliged to surrender; "notwithstanding, the infernal rascals cut him to pieces."

Vol. viii, No. 30.

STODDERT, BENJAMIN, to COL. CHARLES PETTIT :

- 1780.—*January 26*. *War Office*.—By resolution of Congress, business of procuring wood devolves upon the Quartermaster's department, therefore desires him to take such steps as will secure timely and competent supplies. If possible, no addition of officers to the department must be made.

Vol. ii, No. 61.

SULLIVAN, JOHN (Gen.), to CERTAIN WAGONERS :

- 1779.—*November 2*. *Headquarters Smith's Clove*.—An acknowledgment of the wagoners' peculiar services by the Commander-in-Chief of the Western army. [Copy.] Vol. ix, No. 64a.

THOMPSON, JAMES, to MAJ. RICHARD CLAIBORNE :

- 1779.—*October 26*. *New Windsor*.—Making excuses for not sending returns; need of horses and oxen.

Vol. viii, No. 96.

TO UNKNOWN CORRESPONDENT :

- 1779.—*May 2*.—Unable to find a span for the General at a fair price.

Vol. vii, No. 32.

- 1779.—*November 27*.—Delay in army's movements owing to lack of clothing. Preparations being made. Suggests engaging ox teams. Has been obliged to borrow money with which to purchase horses.

Vol. ix, No. 113.

- No Date*.—Plan of getting teams of oxen to take the place of horse teams.

[Fragment.] Vol. vii, No. 103.

TORREY, JOHN, to COL. CHARLES PETTIT :

- 1779.—*January 24. Boston.*—Agreeable to orders marched his company to Hartford and delivered the orders to Col. Hubbard and Commissary Colt ; both said they had no flour and no ovens yet built ; at Boston, also, found no flour, so dismissed his company of bakers. Wishes to know where to lodge certain receipts. Will forward the pay of Adam Fort, a baker, to headquarters, by the first good opportunity.
Vol. iv, No. 98.

TUCKERMAN, ABRAHAM, to MR. BROWN :

- 1780.—*January 5. Highlands.*—Has sent his accounts of disbursements in the months of November and December. Gen. Glover says he will pay the accounts which were objected to.
Vol. ii, No. 77.

VAN DER BURGH, JAMES, to COL. UDNY HAY :

- 1779.—*November 10. Beckman's Precinct.*—Desiring to know what he will allow per month for riding express. They will all decline the service unless a price be fixed.
[Copy.] Vol. xii, No. 8.

VANDEWALL, MARKES (Lieut.), to CAPT. GRAY :

- 1779.—*April 1.* Order to have the bearer's (Joshua Hunter's) musket repaired.
Vol. xii, No. 82.
1779.—*April 2.*—Order to send him by bearer fifty ten-penny nails.
Vol. xii, No. 103.

WADE, FRANCIS (Col.), to COL. JOHN MITCHELL :

- 1779.—*May 18. Wilmington.*—Has just received word that the enemy has landed and taken possession of Portsmouth in Virginia, consequently is preparing to remove the stores at Elk. Account by letter says they are on their march to Suffolk with 4000 men ; generally thought that they will proceed to Baltimore. Will want some of the shallops down directly.
Vol. v, No. 34.

WADSWORTH, JEREMIAH (Col.), to COL. HOOPER :

- 1779.—*January 16. Philadelphia.*—An extract asking Col. Hooper to send off immediately a large quantity of flour.
Vol. iv, No. 46.

WALKER (Lieut.), to CAPT. GRAY :

1778.—*December 26.*—Reminding him of his promise to give him the bedstead in the loft. Vol. xii, No. 87.

1778.—*December 30.*—Order to shoe his horse. Vol. xii, No. 95.

WEBB, ISAAC (Lieut.), to CAPT. GRAY :

1779.—*March 19.*—Orders concerning a box being made to hold his linen. Vol. vii, No. 72.

WEISS, JACOB, to MAJ. RICHARD CLAIBORNE :

1779.—*February 4. Camp.*—Giving names of persons in his department. Requested Col. Hay to send in the tents for repair. Vol. ix, No. 121.

To FORSYTH, ROBERT (Col.):

1779.—*February 2. Camp.*—Has just written to Col. Mitchell for leather. Will attend to stores. Vol. ix, No. 122.

To OLNEY, GEORGE :

1779.—*October 18. New Windsor.*—Wishing to borrow a small quantity of red ink ; if the General is done with the books he left, would like them sent back by bearer. Vol. iii, No. 123.

1780.—*February 18.*—Concerning shoes and the different prices at which they are selling ; asks for some rule as a guide. Vol. ii, No. 103.

1780.—*February 18.*—Enclosing account of certain clothing, and also of the prices estimated by Col. Mitchell, by which further settlements can be made. Vol. iii, No. 62.

WELCH, NATHANIEL, to CAPT. GRAY :

1779.—*April 9.*—Order to repair one musket for the Second Virginia Regiment. Vol. xii, No. 97.

WHITING, TIMOTHY, to COL. UDNY HAY :

1779.—*October 13. West Point.*—His situation different from his brethren in office, on account of his being annexed to the line of the army ; therefore ought to be treated on the same footing with a captain in the line, as was done in May, 1777. Has no aversion to the service, its hard work and inadequate pay, but thinks the sacrifice too great unless he has a prospect of being on a level with the officers of the line. Begs him to

WHITING, TIMOTHY, to COL. UDNY HAY (*continued*):

state the matter to the Quartermaster-General and request him to lay it before Congress, in which case he is willing to continue his services until January 1. Vol. iii, No. 59.

WICKES, THOMAS, AND HARRISON, JOHN, AND CAPP, JOHN (A. D. Q. M. Gen'ls), to COL. UDNY HAY:

- 1779.—*October 8. Fishkill.*—Concurring with the other officers in relation to their treatment by Congress, but differing with them (not through inclination, but hard circumstances) respecting the time when they must resign; miserable situation of their families renders this precaution necessary.

Vol. iii, No. 57.

WILKINSON, JAMES (Gen.), to UNKNOWN CORRESPONDENT:

- 1779.—*October 10. Murderer's Creek.*—Begs him to forward the enclosed to Mr. John Moylan, whose presence at Newbury to take charge of the magazine of clothing is immediately needed.

Vol. ii, No. 105.

WILLIAMSON, MATTHEW, to COL. CHARLES PETTIT:

- 1778.—*September 17. Elizabethtown.*—Asking for an inquiry into the affair of one Capt. Riley, of the Twelfth Pennsylvania Regiment, who impressed a horse belonging to a Mr. Salter and never returned it.

Vol. ix, No. 124.

WOODSON, HUGHS (Capt.), to the ARMORER:

No date.—An order to repair the bearer's musket.

[A fragment.] Vol. xii, No. 67.

RECORDS OF A COURT OF INQUIRY, HELD ON THE MEMORIAL OF CAPT. JOHN BANCKER, BARRACKMASTER OF PART OF THE STATE OF NEW YORK.

JOHN BANCKER'S MEMORIAL:

- 1779.—*August 4. Philadelphia.*—*To the Honorable, the Continental Congress:*—Setting forth the various positions of trust he has held up to 1st of April, 1778, when he was appointed Barrackmaster of large district in State of New York. Unexpectedly relieved of his position on July 14 by Col. Hay in

JOHN BANCKER'S MEMORIAL (*continued*) :

favor of Capt. John Capp. Complains of this injustice and other grievances, which he begs may be investigated.

[Copy.] Vol. xi, No. 8*b*.

BOGERT, CORNELIUS, to CAPT. JOHN BANCKER :

- 1779.—*March 6. Fishkill.*—Can get no wagons to carry wood ; people complaining for want of wood and cursing and swearing at him (Bancker) ; the sick really in want of wood.

Vol. xi, No. 8*a*.

DICKINSON, JOHN, and SCUDDER, NATHANIEL (Committee of Congress), to GEN. NATHANIEL GREENE :

- 1779.—*August 20.*—Extract of a letter concerning Mr. John Bancker's memorial, and a copy of Gen. Greene's answer, dated August 30, 1779.

Vol. xi, No. 8*a*.

DODGE, SAMUEL (Justice of the Peace), to CAPT. JOHN BANCKER :

1779. *May 13. Poughkeepsie.*—Impossible to give the wagons applied for. Scarcity of forage.

Vol. xi, No. 8*m*.

FALLON, JAMES (Senior Surgeon), to COL. UDNY HAY :

- 1779.—*March 5. Fishkill.*—Pitiable condition of the sick soldiers owing to Mr. Bancker's not supplying them with either wood or straw. Unless this want is remedied by Col. Hay, many deaths must occur. Is determined to have Mr. Bancker arrested, that by a proper inquiry the origin of these cruel evils may be ascertained. Mr. B. blames the civil power for not supplying teams and wagons.

[An extract.] Vol. xi, No. 9*k*.

To McDougall, ALEXANDER (Gen.) :

- 1779.—*March 8. Fishkill.*—Calling upon Gen. McDougall, as the supreme military commander of the station, to redress the evils which Mr. Bancker's indolence, inactivity, inattention, neglect and utter incapacity to do the duties of the post, has brought upon them. The poor sick have suffered most, being shamefully neglected in the articles of wood and straw. They would all have perished had not Col. Hay come to his assistance.

Vol. xi, No. 9*j*.

HALE, D. (Major), to CAPT. JOHN CAPP:

- 779.—*June 22. Fishkill.*—By a late resolve of Congress the Barrackmaster's branch is annexed to his department. A vacancy of an Assistant Quartermaster to superintend that business. This vacancy shall be reserved for him (Capt. Capp), at \$160 a month, if he will leave the line and take it. Sure Col. Hay can provide comfortable quarters for Mrs. Capp. Enemy remain close at King's Ferry. Desertion prevalent among them. Accounts of an action from the southward. Arrival of Leonard Van Buren at Fishkill from New York; cannot learn on what terms he is out.

[Genuineness of above letter confirmed by J. Huntingdon.]
Vol. xi, No. 8*d*.

HAY, UDNY (Col.), to CAPT. JOHN BANCKER:

- 778.—*September 11. White Plains.*—Absolute necessity of repairing barracks at Fishkill. Tells him to apply to Major Hale for every assistance in his power. [Copy.] Vol. xi, No. 9*c*.
- 779.—*January 25. Fishkill.*—Daily complaints from persons in his department on the subject of wood which they cannot obtain from Mr. Bancker; other complaints concerning the issue of candles, etc. Asks for a written answer on all these subjects.

Vol. xi, No. 9*d*.

- 779.—*July 14. Fishkill.*—In consequence of resolve of Congress, has it in command of the Quartermaster-General to take under his direction all the barracks within his department. Asks Mr. Bancker, therefore, to inform him what situation the barracks are in, and what stores are on hand, that they may be delivered to a proper person, appointed to receive them.

Vol. xi, No. 9*e*.

- 779.—*August 31. Fishkill.*—Received from Gen. Greene the copy of a memorial presented by Mr. Bancker to Congress, in which he finds some heavy charges against himself. Gives him fair notice of an application he has made to Gen. Greene for a court of inquiry, in order that Mr. B. may procure his witnesses.

Vol. xi, No. 9*f*.

- 779.—*September 2. Fishkill.*—In consequence of Mr. Bancker's memorial to Congress complaining of him, a Court of Inquiry is ordered to sit the following morning at Gen. Huntingdon's.

HAY, UDNY (Col.), to CAPT. JOHN BANCKER (*continued*):

Gives him this notice that he may be properly prepared both for defending his own character and attacking his (Udny Hay's). There is to be no quarter on either side. Vol. xi, No. 9i.

To BADLAM (Col.):

- 1779.—*March 12. Fishkill.*—In consequence of letter from Gen. McDougall, has done his utmost to supply the sick, etc., with firewood, which they could not procure from the Barrackmaster; constantly interrupted in this work by Mr. Bogart, assistant of the Deputy Barrackmaster's. Asks that the matter may be looked into at once. [Copy.] Vol. xi, No. 9j.

To BOGART, CORNELIUS:

- 1779.—*September 3. Fishkill.*—Enclosing a copy of the questions he intends putting to him that very day before the Court of Inquiry, which sits on his and Mr. Bancker's conduct. Gives him this opportunity to frame his answers as much in Mr. B.'s favor as a strict adherence to the truth will admit. [Copy.] Vol. xi, No. 9k.

To GREENE, NATHANIEL (Gen.):

- 1778.—*May 26. Fishkill.*—Informing him that the Barrackmaster receives all his orders from the Barrackmaster-General independent of the Quartermaster's department; asks if that is correct. [Copied extract.] Vol. xi, No. 9a.
- 1778.—*June 29. Peekskill.*—Repeats that the Barrackmaster considers his department independent of Col. Hay's. Asks for his orders on the subject. [Copied extract.] Vol. xi, No. 9b.

- 1779.—*August 31. Fishkill.*—Favored by Mr. Olney with copy of Mr. Bancker's memorial to Congress with extract of letter from John Dickinson and Nathaniel Scudder to Gen. Greene (Vol. xi, No. 8a) concerning it. Asks that the accusations against him may be fully investigated. Will prove guilty to dismissing Mr. Bancker, but will endeavor to prove his total incapacity and continual neglect of duty. Vol. xi, No. 8c.

McDOUGALL, ALEXANDER (Gen.), to CAPT. JOHN BANCKER:

- 1778.—*December 13. Fishkill.*—Ordering him to proceed to Poughkeepsie and prepare for the reception of Col. Jackson's

MCDougall, ALEXANDER (Gen.), to CAPT. JOHN BANCKER
(continued):

regiment. Orders respecting a supply of wood for the troops. Advises him to appoint a deputy to assist him; also to choose the best road for the troops to march by. Vol. xi, No. 8r.

1779.—*February 16. Peekskill.*—Expects him to be at Peekskill in two days to continue a fortnight in a situation there. He is to give orders to his deputies to transact his business faithfully in his absence. [Copy.] Vol. xi, No. 8p.

1779.—*March 6. Peekskill.*—His express orders to Mr. Bancker to pay for all wagons contracted in his department, to obviate the double expense of their going to Philadelphia for the money, and also to consider himself Barrackmaster wherever the greatest number of troops are cantoned, from Poughkeepsie to Croton. Vol. xi, No. 8q.

SCUDDER, NATHANIEL, and DICKINSON, JOHN, (Committee of Congress,) to GEN. NATHANIEL GREENE:

1779.—*August 20.*—Extract of a letter concerning Mr. John Bancker's memorial, and a copy of Gen. Greene's answer, dated August 30, 1779. Vol. xi, No. 8a.

SMITH, E. A., to COL. UDN Y HAY:

1779.—*March 6. Fishkill.*—Suffering of the sick, owing particularly to lack of wood. Mr. Bancker's fair promises amount to nothing. Begs Col. Hay to supply them with wood or to have the authority vested in him. [Copy.] Vol. xi, No. 9l.

1779.—*March 21. Fishkill.*—Must trouble him again about wood. Is it Mr. Bancker's purpose to destroy the sick? Why, then, does he promise wood and straw and never deliver it? The intentions of his medicines counteracted by the cold; begs Col. Hay to send some wood. [Copy.] Vol. xi, No. 9m.

STEVENS, NATHANIEL, to COL. UDN Y HAY:

1779.—*September 1.*—Sending certificate relative to the number of persons belonging to his department for whom Mr. Bancker constantly drew provisions. [Copy.] Vol. xi, No. 9n.

STORM, THOMAS (Justice of the Peace), to CAPT. JOHN BANCKER:

1779.—*March 10. Hopewell.*—Unable to comply with his request for teams; farmers busy sowing. Thinks teams at Fishkill could better haul wood for fuel than these farmers.

Vol. xi, No. 8n.

PAPERS RELATING TO THE COURT OF INQUIRY.

Accounts.

Mr. Bancker's account of expenditures exceeding his receipt of cash. Vol. xi, No. 8*k*.

Certificates.

Form of certificate produced by Mr. Bancker to prove that persons in his employ had to go to Philadelphia, or elsewhere, to Col. Melcher for their money, rendering it difficult to hire any. Vol. xi, No. 8*l*.

Certificate of Major Seth Bannister concerning the amount of wood cut and burnt to keep the barracks warm.

Vol. xi, No. 8*i*.

Evidence.

Ten foolscap pages of evidence produced in the Court of Inquiry appointed to examine into the reasons of Mr. John Bancker's dismissal by Col. Hay. Vol. xi, No. 8*f*.

Justifications.

Major Bancker's justification of himself; giving his reasons for not providing the wood at the proper time.

Vol. xi, No. 10*ii*.

Col. Udny Hay's justification of himself before the Court of Inquiry appointed to investigate Mr. Bancker's dismissal by him [Col. Hay]. Takes each of the five charges made against him by Mr. Bancker and refutes them one by one.

[Twelve pages *q*.] Vol. xi, No. 10*i*.

Questions.

General questions from Nos. 1 to 9—put by Col. Hay to several witnesses and answered in the course of the proceedings of the Court. Vol. xi, No. 8*g*.

Particular questions put by Col. Hay to several witnesses, answered in the course of the proceedings of the Court.

Vol. xi, No. 8*h*.

Questions to Mr. Bancker put by Col. Hay and answered in the course of the proceedings. Vol. xi, No. 8*j*.

Records.

1779.—*September 3. Neilson's Point* (Gen. Huntingdon's Quarters).—Record of procedure of Court of Inquiry appointed to examine into the reasons of the dismissal of Mr. John Bancker from office of Deputy Barrackmaster.

Vol. xi, No. 8*e*.

RETURNS OF THE QUARTERMASTER DEPARTMENT.

ABEEL, JAMES (Col.):

- 1779.—*January*.—Return of stores in Col. Udney Hay's Department at Fishkill. Vol. x, No. 74.
- 1779.—*February 16*.—Return of Quartermaster-General's stores received at Morristown. Vol. x, No. 105.
- 1779.—*April 30*.—Return of tents. Vol. xii, No. 12.
- 1779.—*July 12*.—Return of Quartermaster stores. Vol. x, No. 80.

BALDWIN, JEDUTHUN (Col.):

- 1778.—*December 1*.—Monthly return of artificers under his command. Vol. x, No. 23.
- 1779.—*February 4*.—Return of artificers. Vol. x, No. 100.
- 1779.—*June 28*.—Return of artificers, their stores, tools, etc. Vol. iv, No. 110.
- 1779.—*September 1*.—Return of artificers, tools, etc. Vol. xi, No. 14.
- 1779.—*September 12*.—Return of persons employed under him. Vol. xi, No. 22.
- 1779.—*September 17*.—Return of artificers, tools and stores. Vol. xi, No. 24.
- 1779.—*September 25*.—Return of artificers, etc. Vol. xi, No. 39.
- 1779.—*September 25*.—Return of stores and tools on hand. Vol. xi, No. 37.

BARBER, F.:

- 1779.—*July 23*.—Return of the army under Gen. Sullivan. Vol. ii, No. 67.

BARNES, JOHN:

- 1779.—*February 3*.—Return of articles in possession of Gen. Woodford's Brigade. Vol. x, No. 76.

BETTS, WILLIAM M.:

- 1779.—*September 1. Fishkill*.—Return of Quartermaster-General's stores in the brigades at West Point and Fort Constitution. Vol. xi, No. 12.

BIDDLE, CLEMENT (Col.):

1778.—Return of forage purchased and received under the direction of Owen Biddle in 1778. Vol. xi, No. 67.

Return of forage issued under the direction of Owen Biddle, Esq., 1778. Vol. xi, No. 68.

Return of forage on hand in the several districts under the direction of Owen Biddle, Esq., December 31, 1778. Vol. xi, No. 69.

Return of forage on hand in the several districts under the direction of Owen Biddle, Esq. Vol. i, No. 82.

General return of forage purchased and received under the direction of Owen Biddle, Esq., in 1778. Vol. i, No. 83.

Return of forage issued under the direction of Owen Biddle, Esq., 1778. Vol. i, No. 84.

Return of the forage on hand in the several districts under the direction of Owen Biddle, Esq., 31st December, 1778. Vol. i, No. 88.

1779.—*May 12. Middlebrook.*—Return of forage issued to the brigades of the army in Jersey, from January to April, 1779. Vol. xi, No. 59.

Return of forage received at Middlebrook from January to April, inclusive, 1779. Vol. xi, No. 6.

Return of forage on hand in the several districts under the direction of Owen Biddle, Esq. Vol. xi, No. 62.

General return of forage purchased, received and issued in the month of March, 1779, under the direction of Owen Biddle, Esq. Vol. xi, No. 63.

Return of forage on hand in the several districts under the directions of Owen Biddle. Vol. xi, No. 64.

Return of forage issued under the direction of Owen Biddle in January and February, 1779. Vol. xi, No. 65.

Return of forage purchased and received under the direction of Owen Biddle in the months of January and February, 1779. Vol. xi, No. 66.

Return of forage received, issued and on hand in the eastern and northern districts for the year 1779. Vol. i, No. 77.

BIDDLE, CLEMENT (Col.) (*continued*):

Return of forage received at the magazine in Camp Middlebrook, January, February, March and April, 1779.

Vol. i, No. 78.

Return of forage issued to the brigades of the army in Jersey, January, February, March and April, 1779.

Vol. i, No. 79.

Return of forage received at the magazine at Trenton by shallops up the Delaware from the opening of the river in February to the 28th of April, 1779.

Vol. i, No. 80.

Return of forage received, issued and on hand in the eastern and northern districts for the year 1779.

Vol. i, No. 81.

Return of forage issued under the directions of Owen Biddle, Esq., in January and February, 1779.

Vol. i, No. 85.

Return of forage purchased and received under the direction of Owen Biddle, Esq., in January and February, 1779.

Vol. i, No. 86.

Return of forage on hand in the several districts under the direction of Owen Biddle, Esq., the 28th of February, 1779.

Vol. i, No. 87.

Return of forage purchased, received and issued in the month of March, 1779, under the direction of Owen Biddle, Esq.

Vol. i, No. 89.

BOWEN, EPHRAIM (Col.):

1779.—*February 15. Providence.*—Return of stores, men employed, etc.

Vol. x, No. 106.

Return of the Wagonmaster-General's Department, State of Rhode Island.

Vol. x, No. 107.

Return of stores issued from the Quartermaster-General's Department, State of Rhode Island.

Vol. x, No. 108.

Return of the men employed in the Quartermaster-General's Department, State of Rhode Island.

Vol. x, No. 109.

1779.—*April 3. Providence.*—Return of stores, etc., in the State of Rhode Island.

Vol. xii, No. 45.

Return of Wagonmasters in State of Rhode Island.

Vol. xii, No. 46.

BRUIN (Capt.):

1778.—*October 12.*—Return of clothing needed for his company of artificers.

Vol. xi, No. 56.

CAPE, JOHN:

Return of the lumber issued from November 27–December 18, 1778. Vol. x, No. 30.

CAVENAGH, HENRY:

1778.—*December 8.*—Return of clothing for Col. Hay's teamsters. Vol. xi, No. 57.

CHASE, THOMAS (Col.):

1779.—*February 2.*—Return of Continental stores in his possession. Vol. x, No. 94.

1779.—*February 6. Boston.*—Return of men employed in Quartermaster-General's department. Vol. x, No. 81.

1779.—*April 1.*—Return of Continental stores. Vol. xii, No. 43.

No date. Boston.—Return of persons employed under him. Vol. xii, No. 22.

CHURCH, ALEXANDER:

1779.—*February 28.*—Return of the horse-yard. Vol. x, No. 64.

1779.—*April 25.*—Return of the horse-yard. Vol. xii, No. 42.

Return of horses from May 30 to June 30. Vol. iv, No. 103.

Return of horses from August 29 to September 6, 1779. Vol. xi, No. 15.

Return of horses from September 6 to 20, 1779. Vol. xi, No. 27.

1779.—*September 26.*—Return of persons employed. Vol. xi, No. 41.

Return of horses from September 20 to 28, 1779. Vol. xi, No. 42.

Return of horses from September 23 to October 7, 1779. Vol. xii, No. 117.

Return of horses from October 7 to 14, 1779. Vol. xii, No. 116.

Return of horses from October 14 to 21, 1779. Vol. xii, No. 115.

Return of horses from October 21 to 30, 1779. Vol. xii, No. 114.

CHURCH, ALEXANDER (*continued*):

- Return of horses from October 30 to November 8, 1779.
Vol. xii, No. 112.
- Return of horses from November 8 to 15, 1779.
Vol. xii, No. 113.
- Return of horses from November 15 to 22, 1779.
Vol. xii, No. 123.
- Return of horses from November 22 to 29, 1779.
Vol. xii, No. 124.
- Return of horses from November 29 to December 7, 1779.
Vol. xii, No. 125.
- Return of horses from December 7 to 12, 1779.
Vol. xii, No. 126.
- Return of horses from December 15 to 23, 1779.
Vol. xii, No. 119.
- Return of horses from December 23 to 31, 1779.
Vol. xii, No. 118.
- Return of horses from February 10 to 17, 1780.
Vol. xii, No. 120.
- Return of horses, February 17 to 24, 1780.
Vol. xii, No. 121.
- Report of horses in the yard, February 25, 1780.
Vol. xii, No. 122.

CONNOR, CHARLES:

- 1779.—*June 9. Camp Clove.*—Charles Connor's return of the teams, etc., belonging to the Pennsylvania Division commanded by Gen. St. Clair.
Vol. iv, No. 121.

DAVIS, JOHN (Col.):

- 1779.—*February 28.*—Col. Davis' return of Quartermaster's stores.
Vol. x, No. 63.

DE HAAS, JOHN PHILIP (Col.):

- Without date.*—Return of rations due the 1st Pennsylvania Regiment commanded by him, commencing Quebec, March 13, and ending Crown Point, July 6, 1776. Vol. vii, No. 9.

DUNN, JEREMIAH:

- 1779.—*February 13.*—Return of express riders under him.
Vol. x, No. 102.

DUNN, JEREMIAH (*continued*):

- 1779.—*February 22*.—Weekly return of express riders.
Vol. x, No. 71.
1779.—*April 23*.—Return of express riders with the army.
Vol. xii, No. 48.

DYER, EDW.:

- 1779.—*February 4*.—Return of Quartermaster-General's stores in
1st Maryland Brigade. Vol. x, No. 99.
1779.—*September 11*.—Return of stores in the 2d Maryland
Brigade. Vol. xi, No. 20.
1779.—*September 18*.—Return of stores in the 2d Maryland
Brigade. Vol. xi, No. 29.
1779.—*September 26*.—Return of stores in 2d Maryland Brigade.
Vol. xi, No. 40.

ELTON (Lieut.):

- 1778.—*October 12. Fredericksburg*.—Lieut. Elton's return of
clothing for part of Capt. Matthias Sadler's company of arti-
ficers for 1778. Vol. xi, No. 51.

EYRE, BENJAMIN G.:

- Without date*.—Return of all the men employed in the boat de-
partment now in actual service at Middletown and Potomac.
Vol. iv, No. 104.

FINNIE, WILLIAM (Col.):

- 1779.—*March 31*.—General return of forage. Vol. xii, No. 16.
1779.—*April*.—Return of forage contracts. Vol. xii, No. 19.
Without date.—Return of grain from June 6, 1778, to April 16,
1779. Vol. xii, No. 17.

GREENE, JACOB:

- 1779.—*April 3*.—Return of stores in the State of Rhode Island.
Vol. xii, No. 35.

HAY, UDNY (Col.):

- 1778.—*October 13. Fishkill*.—Return of clothing for artificers
under his direction. Vol. xi, No. 58.
1778.—*October 13*.—Return of Quartermaster-General's stores
under his direction. Vol. x, No. 52.

HAY, UDNY, (Col.) (*continued*):

1778.—*December 31*.—Return of artificers under his direction.
Vol. x, No. 93.

1779.—*February 2*.—Return of public horses sent to winter.
Vol. x, No. 92.

1779.—*April 9*.—Return of sundry articles wanted at Fishkill.
Vol. xii, No. 25.

HEWITT, SAMUEL (Capt.):

1779.—*April 30*.—Return of the horses, wagons and other property
belonging to the wagon department at the post of Elk.
Vol. iv, No. 102.

1779.—*May 31*.—Return of the horses, wagons, etc., belonging to
the wagon department at the post of Elk. Vol. iv, No. 114.

1779.—*June 30*.—Return of the wagons, horses, etc., belonging to
the wagon department at the post of Elk.
Vol. iv, No. 117.

HOWE, BAXTER (Quartermaster):

1778.—*December 13*.—Return of horses in Gen. Knox's brigade
of artillery. Vol. x, No. 26.

1779.—*February 4*.—Return of Quartermaster's stores with the
artillery. Vol. x, No. 78.

1779.—*April 10*.—Return of marquees, etc., with the artillery at
Pluckemin. Vol. xii, No. 29.

1779.—*April 21*.—Return of sundry articles purchased by Col.
Mitchell for the park of artillery. Vol. xii, No. 39.

1779.—*September 16*.—Return of stores in the park of artillery
commanded by Brig.-Gen. Knox. Vol. xi, No. 23.

HOWELL, READING:

1779.—*June*.—Return of Quartermaster-General's stores in the
county of Chester. Vol. iv, No. 105.

HUBBARD, NEHEMIAH:

1778.—*December 31*.—Return of stores in the Quartermaster-
General's department in Connecticut under his direction.
Vol. x, No. 47.

1779.—*January 1*.—Return of artificers enlisted for three years,
or during the war, employed in State of Connecticut.
Vol. vii, No. 54.

HUBBARD, NEHEMIAH (*continued*):

- 1779.—*April 1*.—Return of assistants, clerks, etc., in the State of Connecticut. Vol. xii, No. 53.
 1779.—*April 8*.—Return of stores. Vol. xii, No. 22.
 1779.—*April 8*.—Return of wagons, horses, etc. Vol. xii, No. 44.
 1779.—*April 8*.—Return of teams hired and employed in Continental service in the State of Connecticut. Vol. xii, No. 55.
 1779.—*September 18. Hartford*.—Return of teams hired and employed. Vol. xi, No. 30.
 1779.—Return of teams to serve on west side of Hudson river. Vol. xi, No. 31.
No date.—Return of scow-boats on Connecticut river. Vol. xi, No. 32.

HUGHES, JOHN :

- 1779.—*February 2*.—Return of camp equipage in the 1st Pennsylvania Brigade. Vol. x, No. 101.
 1779.—*February 4*.—Return of Quartermaster-General's stores in the 1st Pennsylvania Brigade. Vol. x, No. 77.
 1779.—*February 17*.—Return of horses in the 1st Pennsylvania Brigade. Vol. x, No. 73.
 1779.—*April 1*.—Return of stores in the 1st Pennsylvania Brigade. Vol. xii, No. 49.
 1779.—*June 13*.—Return of Quartermaster-General's stores in the 1st Pennsylvania Brigade commanded by Brig.-Gen. William Irvin. Vol. iv, No. 109.
 1779.—*September 10*.—Return of the 1st Pennsylvania Brigade for camp equipage. Vol. xi, No. 17.
 1779.—*September 18. West Point*.—Return for camp equipage in the 1st Pennsylvania Brigade. Vol. xi, No. 26.
 1779.—*September 26*.—Return of camp equipage in 1st Pennsylvania Brigade. Vol. xi, No. 38.

LANSING, PHILIP :

- 1779.—*February 28*.—Return of forage purchased and remaining in the Northern Department. Vol. x, No. 83.

LAWSON, BENJAMIN :

- 1779.—*February 4*.—Return of Quartermaster-General's stores in the 2d Virginia Brigade. Vol. x, No. 69.
 1779.—*February 17*.—Return of horses in Gen. Scott's brigade. Vol. x, No. 65.

LEWIS, MORGAN (Col.):

- 1778.—Return of officers in the Northern Department. Vol. x, No. 39.
 1779.—*February*.—Return of Quartermaster-General's stores in the Northern Department. Vol. x, No. 8.
 1779.—*April*.—Return of stores, etc., in the Northern Department. Vol. xii, No. 14.

MCCULLOCH, JAMES :

- 1779.—*February 17*.—Return of horses in 2d Pennsylvania Brigade. Vol. x, No. 67.

MARBURY, JOSEPH (Capt.):

- 1779.—*February 4*.—Return of camp equipage in the 1st Maryland Brigade. Vol. x, No. 98.
 1779.—*February 17*.—Return of horses in the 1st Maryland Brigade. Vol. x, No. 60.
 1779.—*September 11*.—Return of Quartermaster's stores in the 1st Maryland Brigade. Vol. xi, No. 19.
 1779.—*September 18*.—Return of Quartermaster's stores in the 1st Maryland Brigade. Vol. xi, No. 28.

MENG, CHRISTOPHER :

- 1778.—*December 28*.—Return of saddles. Vol. x, No. 38.
 1779.—*September 6*. *New Windsor*.—Return of camp equipage in Mr. Weiss' family. Vol. xi, No. 16.

MITCHELL, IGNATIUS :

- 1779.—*February 16*.—Return of horses in 2d Maryland Brigade. Vol. x, No. 62.
 1779.—*February 16*.—Return of horses in 2d Maryland Brigade, February 16, 1779. Vol. x, No. 68.

MOYLAN, STEPHEN :

- 1780.—*January 30*. *Middletown*.—Return of shoes purchased for Moylan's Light Dragoons. Vol. ix, No. 69a.

NORDON, ARCHIBALD N.:

- 1779.—*October 31*.—Return of wagons, boats, stores and forage destroyed by the enemy at Middlebrook, October, 1779.
[Copy.] Vol. iii, No. 14.

NORTH, GEORGE:

- 1779.—*February 2*.—Monthly return of Quartermaster-General stores in 2d Pennsylvania Brigade. Vol. x, No. 87.
1779.—*April 1*. *Middlebrook*.—Return of stores in 2d Pennsylvania Brigade. Vol. xii, No. 50.
1779.—*January 2*. *Hanover*.—Return of Quartermaster-General stores in the 2d Pennsylvania Brigade. Vol. iv, No. 122.
1779.—*September 4*. *West Point*.—Return of Quartermaster-General stores in Col. Johnston's 2d Pennsylvania Brigade.
Vol. xi, No. 13.
1779.—*September 11*.—Return of stores in the 2d Pennsylvania Brigade. Vol. xi, No. 21.
1779.—*September 18*. *West Point*.—Weekly return of Quartermaster-General stores in the 2d Pennsylvania Brigade.
Vol. xi, No. 25.
1779.—*September 25*.—Weekly return of stores in the 2d Pennsylvania Brigade. Vol. xi, No. 36.

OAKLEY, CORNELIUS:

- 1778.—*November 20*.—Return of horses from November 9 to the 20, 1778. Vol. x, Nos. 36 and 37.
1778.—*December 14*.—Return of horses from November 20 to December 14, 1778. Vol. x, No. 24.
1778.—*December 23*.—Return of horses from December 14 to the 23, 1778. Vol. x, No. 27.
1778.—*December 31*.—Return of horses. Vol. x, No. 41.
1779.—*February 1*.—Return of horses taken from headquarters to Valley Forge. Vol. x, No. 86.
1779.—*July 3*.—Return of rations drawn for the use of Gen. Greene's family from July 23 to 31, 1779.
Vol. xii, No. 66.
1779.—*August 1*.—Return of provisions drawn for the use of Gen. Greene's family from August 1 to 7, 1779.
Vol. xii, No. 62.

OAKLEY, CORNELIUS (*continued*):

1779.—*August 14.*—Return of rations drawn for the use of Gen. Greene's family from August 7 to 14, 1779.

Vol. xii, No. 63.

1779.—*August 21.*—Return of rations drawn for the use of Gen. Greene's family from August 15 to 21, 1779.

Vol. xii, No. 64.

1779.—*August 31.*—Return of rations drawn from A. C. issues from August 23 to 31, 1779.

Vol. xii, No. 61.

1779.—*September 7.*—Return of rations drawn for the use of Gen. Greene's family from September 1 to 7, 1779.

Vol. xii, No. 65.

OTIS & HENLEY:

1779.—*April 1.*—Return of Quartermaster's stores in their possession.

Vol. xii, No. 59.

1779.—*April 26.*—Return of stores on hand and of tents forwarded to Springfield.

Vol. xii, No. 41.

1779.—*June 1.*—Return of wagonmaster's stores in their possession.

Vol. iv, No. 115.

OVERTON, THOMAS:

1779.—*April 29.*—Return of stores in the 2d Virginia Brigade.

Vol. xii, No. 52.

1779.—*June 12.*—Return of Quartermaster-General stores in Gen. Muhlenberg's Brigade.

Vol. iv, No. 120.

PARKER, PHINEAS (Lieut.):

1778.—*October 12. Fredericksburg.*—Return of clothing for the late Capt. Pollard's company of artificers for 1778.

Vol. xi, No. 54.

PATTON, ROBERT:

1779.—*June 29.*—Return of persons employed in the Quartermaster-General's department.

Vol. iv, No. 113.

1779.—*July 1.*—Return of stores on hand at the post of Lebanon.

Vol. iv, No. 112.

SHERIFF, CORNELIUS (Col.):

1779.—*April 30. Downingtown.*—Return of persons employed in the Quartermaster-General's department in the district of Chester.

Vol. xii, No. 1.

SHERIFF, CORNELIUS (*continued*):

1779.—*April 30. Downingtown.*—Return of persons employed in the forage department. Vol. xii, No. 13.

1779.—*April 30. Downingtown.*—Return of stores on hand the last of April, 1779, in Chester County district.

Vol. xii, No. 15.

SMITH, WILLIAM:

Return of stores, etc., for the month of February, 1779.

Vol. xi, No. 11.

Return of persons, stores and forage for the month of March, 1779.

Vol. xii, No. 47.

STARR, EZRA:

1779.—*April 1.*—Return of stores. Vol. xii, No. 23.

1779.—*April 1.*—Return of men employed in the Quartermaster's department at Danbury.

Vol. xii, No. 56.

STEWART, CHARLES:

1779.—*January 24.*—Return of tents, etc., delivered from the North Carolina Brigade.

Vol. x, No. 56.

1779.—*February 4.*—Return of tents kept by the officers of the North Carolina Brigade.

Vol. x, No. 79.

1779.—*February 7.*—Return of camp equipage in Col. Clark's North Carolina Brigade.

Vol. x, No. 75.

1779.—*February 7.*—Return of tents delivered at Morristown to Deputy Quartermaster-General.

Vol. x, No. 104.

1779.—*February 26.*—Return of camp equipage, etc.

Vol. x, No. 54.

1779.—*February 26.*—Return of riding horses in North Carolina Brigade.

Vol. x, No. 55.

1779.—*April 12.*—Return of wagons and teams in North Carolina Brigade.

Vol. xii, No. 32.

1779.—*April 12.*—Return of riding horses in the North Carolina Brigade.

Vol. xii, No. 33.

1779.—*April 12.*—Return of camp equipage in the North Carolina Brigade.

Vol. xii, No. 34.

1779.—*April 18.*—Return of horses and teams in the North Carolina Brigade.

Vol. xii, No. 36.

STEWART, CHARLES (*continued*):

- 1779.—*April 18*.—Return of riding horses which draw forage in the North Carolina Brigade. Vol. xii, No. 37.
 1779.—*April 18*.—Return of camp equipage in the North Carolina Brigade. Vol. xii, No. 38.

THOMPSON, JAMES (Col.):

- 1779.—*February 4*.—Return of wagons, etc., employed with the army at Middlebrook. Vol. x, No. 95.
 1779.—*April 12*. *Middlebrook*.—Return of enlisted wagons. Vol. xii, No. 30.
 1779.—*April 12*.—Return of wagons with the army at Middlebrook. Vol. xii, No. 31.
 1779.—*June 28*. *Smith's Clove*.—Return of the wagons and horses with the army. Vol. iv, No. 107.
 1779.—*September 10*.—Return of stores in his family. Vol. xi, No. 18.

TUCKERMAN, ABRAHAM:

- 1779.—*September 22*.—Return of stores in Gen. Glover's Massachusetts Brigade. Vol. xi, No. 34.
 1779.—*September 29*.—Return of stores in Gen. Glover's Massachusetts Brigade. Vol. xi, No. 43.

VOORHEES, MINNE:

- 1779.—*September 23*.—Return of tents of the Flying Hospital. Vol. xi, No. 35.

WALKER, LEVIN:

- 1779.—*February 4*.—Return of Quartermaster-General's stores in the 1st Virginia Brigade. Vol. x, No. 66.
 1779.—*February 17*.—Return of horses in Gen. Muhlenberg's Brigade. Vol. x, No. 61.

WEISS, JACOB:

- 1778.—*October 11*.—Return of clothing in Quartermaster-General's stores. Vol. xi, No. 50.
 1778.—*October 12*.—Return of clothing received and wanting for the enlisted wagoners. Vol. xi, No. 55.
 1778.—*December 1*.—Return of tools at Middlebrook. Vol. x, No. 35.

WEISS, JACOB (*continued*):

1778.—*December 6*.—Return of tools at Middlebrook.

Vol. x, No. 33.

Without date.—Return of clothing received and delivered, September and October, 1778.

Vol. xi, No. 45.

1779.—*September*.—Return of casual deliveries of stores for the campaign of 1779.

Vol. xi, No. 44.

WHITING, TIMOTHY:

1779.—*June 10. West Point*.—Return of the boats fit and unfit for service.

Vol. iv, No. 108.

WILKINSON, NATHANIEL:

1778.—*December 12*.—Return of the horses in the Jersey Brigade.

Vol. x, No. 25.

1779.—*February 4*.—Return of camp equipage belonging to Gen. Maxwell's Jersey Brigade.

Vol. x, No. 70.

YOUNG, H.:

1779.—*February*.—Return of horses in Gen. Woodford's brigade.

Vol. x, No. 84.

1779.—*April 27*.—Return of the stores in the 1st Virginia Brigade.

Vol. xii, No. 51.

MISCELLANEOUS RETURNS.

1779.—*April*.—Return of the army.

Vol. xii, No. 58.

1779.—*June 10*.—Return of boats lying at Fishkill landing.

Vol. iv, No. 119.

1779.—*June 10*.—Return of boats lying at Fishkill.

Vol. iv, No. 106.

Without date.—Return of leather breeches received at Moore Hall for public use, 1778.

Vol. xi, No. 49.

1779.—*February 4*.—Return of the Brigade Quartermaster's deputies, clerks, etc.

Vol. x, No. 97.

1779.—*April*.—Return of camp equipage wanting and that in store for the troops at Reading, Peekskill, etc.

Vol. xii, No. 57.

Without date.—A return of iron-work for twelve galleys.

Vol. xi, No. 78.

- Without date.*—Return of marquees and tents for Gen. Nixon's, Patterson's and Huntingdon's brigades in the campaign of 1778. Vol. x, No. 53.
- Without date.*—Returns required for the Quartermaster's Department. Vol. vii, No. 104.
- 1779.—*June 26.*—A return of shipwrights at Philadelphia and Fort Pitt. Vol. iv, No. 111.
- 1779.—*February 4.*—Return of Quartermaster-General's stores, with the brigades in camp. Vol. x, No. 96.
- 1779.—*March.*—Return of stores for twelve row-galleys. Vol. xi, No. 77.
- 1779.—*September.*—Return of stores ordered to be deposited at Estherton for the Indian expedition. Certain remarks. Vol. xi, No. 33.

MISCELLANEOUS PAPERS.

Abstracts.

COOK, WILLIAM:

Abstract of quartermaster's stores purchased, received and issued by William Cook from March 1 to December 1, 1779. [Part torn off.] Vol. xii, No. 60.

Accounts.

ABEEL, JAMES F.:

Account of stores sent to Middlebrook.

Vol. x, No. 22.

BIDDLE, CLEMENT (Col.):

- 1779.—*May 12. Middlebrook.*—Col. Biddle's account of forage received at the magazine at Trenton from the opening of the Delaware in February to April 28, 1779. Vol. xi, No. 60.

GORE, JAMES:

James Gore's account of his expenses from Morristown to Philadelphia in six days. Vol. iii, No. 60.

HAY, UDNY (Col.):

- 1779.—*January 1.*—Account of stores wanted by Col. Hay at Fish-kill. Vol. x, No. 72.

MITCHELL, JOHN (Col.):

Without date.—Account of clothing sent from the Deputy Quartermaster-General's stores in Philadelphia to the Quartermaster-General's stores at camp in August and September, 1778.
Vol. xi, No. 48.

Without date.—An account of stores sent to the Quartermaster-General's stores at camp in May and June, 1779.
Vol. iv, No. 116.

SHALLUS, JACOB:

1777.—*February 13. Lancaster.*—Account of provisions issued by Jacob Shallus, Deputy Commissary-General.
Vol. vii, No. 10.

Without date.—Account of moneys laid out by Jacob Shallus, Quartermaster to the 1st Pennsylvania Regiment of Foot, commanded by John Philip de Haas, colonel for said regiment, on their march from Philadelphia to Albany, January to September, 1779.
Vol. vii, No. 11.

Without date.—Account of sundry Continental stores received and delivered at Lancaster.
Vol. vii, No. 14.

TRAILL, ROBERT:

1779.—*July 9. Easton.*—Account of stores and pack-saddles.
Vol. xi, No. 80.

ANONYMOUS:

1778.—*October 28.*—Account of clothing in store.
Vol. xi, No. 47.

General account of horses from November 16 to December 11, 1778.
Vol. x, No. 28.

General account of horses from 11th to 29th December, 1778, inclusive.
Vol. x, No. 29.

General account of horses from 2d to 15th February, 1779.
Vol. x, No. 57.

General account of horses from March 21 to April 9, 1779.
Vol. xii, No. 28.

General account of horses from April 25 to May 3, 1779.
Vol. xii, No. 40.

Acts and Resolutions.

An act to amend an act for regulating impresses of forage and carriages, and for billeting troops within the State of New York. [Finished in Vol. iv, No. 57.] Vol. iv, No. 59.

Act of the State of New York relating to teams, forage, etc.
[Part in Vol. iv, No. 59.] Vol. iv, No. 57.

- 1778.—*February 9*.—Resolve of Congress concerning the right invested in the Executive power of every State to regulate the behavior of all Continental officers. Vol. x, No. 4.

Contracts.

- 1778.—Contract signed by U. S. express riders. Vol. xi, No. 75.

Estimates.

HUBBARD, NEHEMIAH :

- 1779.—*October 15*.—Estimate of hay in Connecticut.
Vol. xii, No. 20.

SMITH, WILLIAM :

- 1779.—*January 20*.—Estimate of work for a row-galley.
Vol. xi, No. 86.
1779.—*January 20*.—Estimate of articles necessary to build a row-galley.
Vol. xi, No. 87.
1779.—*April 9*. *Fishkill*.—Estimate of prices for teaming in the State of New York.
Vol. xii, No. 27.
1779.—*May 9*.—Estimate of the expenses attending certain services to be performed in the Department of Springfield.
Vol. iv, No. 118.

Forms.

- 1779.—Form for general return. Vol. x, No. 58.
Form for return of tools. Vol. xii, No. 2.

Inventories.

PATTON, ROBERT (Gen.) :

- 1778.—*May 28*. *Lebanon*.—Inventory of horses, etc., sent to Col. Pettit at Moore Hall by Gen. Robert Patton.
Vol. xi, No. 74.

ANONYMOUS :

- 1779.—*February 12*. *Middlebrook*.—Inventory of stores in the Quartermaster-General's department. Vol. x, No. 103.

Invoices.

BROOKS, HENRY :

- 1778.—*October 16.*—Invoice of clothing, etc., received at Philadelphia. Vol. xi, No. 52.

COX, CORNELIUS (Col.):

Invoice of stores forwarded to Danbury by order of Gen. Hand. Vol. xi, No. 79.

OTIS & HENLEY :

- 1779.—*May 8.*—Invoice of woolens purchased and forwarded to William Smith, Esq., at Springfield. Vol. vii, No. 63.

SHALLUS, JACOB :

- 1777.—*November 11.*—Invoice of flour sold at the Continental stores. Vol. vii, No. 12.

Journal.

SHALLUS, JACOB :

Copy of a journal, covering the months of May and June, 1776, kept by Jacob Shallus, Esq., of Philadelphia, who went upon the expedition to Canada as a volunteer.

Vol. vii, No. 8.

Miscellaneous Lists.

BIDDLE, CLEMENT (Col.):

- 1778.—*November 25. Quakerhill.*—List of horses for winter quarters from December 1, 1778, to May 1, 1779. Vol. x, No. 21.

GREENE, NATH. (Gen.):

- 1779.—*March 2. Camp, Middlebrook.*—List of articles to be provided and deposited at Estherton for the ensuing campaign. Probably drawn up by Gen. Greene. [Enclosed in letter from Gen. Greene to Gen. Washington.] Vol. ii, No. 87.
1779.—*March 3. Middlebrook.*—Copy of MS. No. 87, Vol. ii. Vol. ii, No. 85.

HOWE, BAXTER :

List of officers who have riding-horses in the brigade of artillery. Vol. xi, No. 23a.

MYER, JOHN :

- 1778.—*December 7*.—List of provisions and stores remaining at Daniel Wright's. Vol. x, No. 32.

ANONYMOUS :

- 1778.—*December*.—List of articles ordered by assistant Quartermaster-General. Vol. x, No. 89.
- 1778.—*October 20*.—A list of clothing to be delivered. Vol. xi, No. 53.
- 1778.—*October 21*.—A list of clothing to be issued to each company. Vol. xi, No. 46.
- 1778.—*December*.—List of stores to be kept in readiness in Philadelphia. Vol. x, No. 90.
- Without date*.—List of sundries wanted for the department. Vol. xii, No. 20.
- 1778.—List of horses to remain with the army. Vol. xi, No. 76.
- Without date*.—List of men employed in the boats at Springfield to November 25. Vol. xi, No. 91.
- 1779.—*February*.—List of officers in Northern Department. Vol. x, No. 82.
- 1779.—*April*.—List of staff officers in Quartermaster's department, Albany district. Vol. xii, No. 3.
- Without date*.—List of vessels taken up. [Enclosed in letter from Samuel A. Otis to Gen. Greene.] Vol. iv, No. 70.

Memoranda.

EYRE (Maj.) :

- Memorandum of various tools. Vol. xi, No. 73.

FINNIE, WILLIAM (Col.) :

- Without date*.—Memorandum.—Will please inquire whether there is not a resolution of Congress empowering the commander-in-chief to order any officer he pleases a full quantity of rations in lieu of subsistence money. Vol. xii, No. 18.

GRAY, GEORGE (Capt.) :

- Memorandum for Capt. Gray to make for the baker of Gen. Muhlenburg's brigade. Vol. xii, No. 104.

HAY, UDNY (Col.) :

- Memorandum of blankets wanting. Vol. xi, No. 81.

HUBBARD, NEHEMIAH :

- 1779.—*August 12.*—Memorandum relating to shoemakers.
Vol. xi, No. 71.

MITCHELL, JOHN (Col.):

- 1779.—*April.*—Memorandum of sundry articles, received from Col. Mitchell, to be deposited at Estherton, etc. Vol. xi, No. 72.

MORGAN, JACOB (Col.):

- 1779.—*March 18.*—Memorandum for Gen. Greene concerning the water-carriage on the Potomac. Vol. xi, No. 83.

OTIS, SAMUEL :

- 1779.—*February 27.*—Memorandum of money distributed in Quartermaster-General's department. Vol. x, No. 85.

WEISS, JACOB:

- 1780.—*February 14.*—Memorandum of espontoons sent to Newburg from June to December, 1779. Vol. xi, No. 70.
Without date.—Jacob Weiss' memorandum of clothes at Morris-town and Middlebrook. Vol. x, No. 34.

ANONYMOUS :

- 1779.—Memorandum of articles wanted in the Northern department. Vol. xi, No. 82.
1779.—*February 2.*—Articles ordered to be manufactured to the eastward. Vol. x, No. 91.
1779.—*February 2.*—Memorandum of sundries wanted for the artificers. Vol. ix, No. 123.
1780.—*March.*—Memorandum of sundry stores wanted at Fishkill. Vol. xi, No. 92.

Muster-Roll.

WAGENER, PHILIP (Capt.):

- 1777.—*September 17.*—Capt. Philip Wagener's muster-roll.
Vol. vii, No. 13.

Oath of Allegiance.

SHALLUS, JACOB :

- 1777.—*September 15. Lancaster.*—Oath of allegiance to the thirteen United States of America by Jacob Shallus, Commissary of Issues. Vol. vii, No. 6.

Petitions.

ARTIFICERS UNDER BOLTON (Lieut.), to GEN. GREENE:

- 1778.—*December 4. West Point.*—Setting forth Lieut. Bolton's fine qualities, and petitioning that if the company must be broken up, they may not be ordered into Capt. Sizer's company, but into Capt. Pendleton's. Vol. x, No. 31.

LAWRENCE, WILLIAM, AND OTHER EXPRESS-RIDERS, to GEN. GREENE:

- 1779.—*December.*—Petitioning for an increase of their pay. Vol. xii, No. 4.

McCOLLISTER, ALEXANDER, AND OTHER EXPRESS-RIDERS, to GEN. GREENE:

- 1779.—*February 22.*—Asking that their wages may be raised to eight dollars a day. Vol. iv, No. 87.

MILL, WILLIAM (Capt.), ARTIFICERS OF, to COL. BALDWIN:

- 1779.—*February 8. Camp.*—Engaged in the service with the understanding of being entitled to every perquisite due to the common soldier; this promise not fulfilled; ask for redress that they may be able to support their families, otherwise their servitude will be worse than the "Egyptian Bondage." Vol. iv, No. 86.

No Date.—Asking for some redress against certain taxations. Vol. iv, No. 84.

No Date.—Asking that their tools may be paid for, and also their doctors' bills. Vol. iv, No. 85.

PYNCHON, WILLIAM, AND OTHER REPRESENTATIVES OF THE SELECTMEN OF SPRINGFIELD, to THE HON. COUNCIL OF THE STATE OF MASSACHUSETTS BAY:

- 1778.—*August 31.*—Want of economy in the expenditure of public money destroys the people's confidence. The case of the Continental Ferry across the Connecticut river; the tremendous cost of it; asks that a public inquiry may be made into the matter. Vol. xi, No. 90.

VAN COURT, ELIAS, to GEN. GREENE:

- 1779.—*October 27.*—Petition from Elias Van Court, a tailor, asking that he may be released from the guard-house, where he has been confined eleven days for some offense. Vol. viii, No. 98.

Receipts.

HOOPER, R. L. (Col.):

- 1779.—*April 26.*—At the request of Col. Hooper to value and appraise a horse, the property of Col. Timothy Bigelow, at the sum of £100. Receipt signed by Col. Hooper for the said horse. Certified to by Robert Traill. Vol. vii, No. 86.

MARSH, GEORGE:

- 1779.—*February 5.*—Receipted bill signed by George Marsh. Vol. iv, No. 40.

OPDYCKE, JOSHUA:

- 1779.—*February 2.*—Receipt for articles delivered by Mr. Mitchell Signed by Joshua Opdycke. Vol. x, No. 88.

REPORTS.

Court of Inquiry.

- 1779.—*May 19. Middlebrook.*—Having considered the charges against Adam Jameson, brigade commissary, are unanimously of the opinion that he is not censurable by any means, in detaining a horse claimed by George Hook. [Signed by Lyman Hitchcock.] Vol. v, No. 50.

MASSACHUSETTS, COUNCIL OF:

- 1779.—*January 6.*—Finds Col. Mason, Major Eyre and Col. Smith guilty of appropriating stores and wood belonging to the United States for their own private purposes; also of establishing a Continental ferry without order. [Signed by Timothy Danielson.] Vol. xi, No. 85.

Plan of March.

Route for Col. Clark's Brigade, from New Windsor to Charlestown, S. C. Vol. iv, Nos. 22, 22a, 23, 24, 25.

Stated Meeting, April 20, 1900.

Vice-President WISTAR in the Chair.

Present, 7 members.

A letter was read from the President, announcing the appointment of Mr. Hampton L. Carson to prepare an obituary notice of the late William M. Tilghman, and of Prof. Samuel P. Sadtler to prepare one of the late Charles Bullock; also letters from Messrs. Carson and Sadtler accepting the appointments.

The death, on April 10, of Frank Hamilton Cushing, of Washington, D. C., aged forty-three years, was announced.

Dr. Coleman Sellers made a communication on his late trip to Europe, and his investigations on the manufacture of carbide of calcium and caustic soda, and the operations of electric plants from the improved water-power of the river Rhone.

The Society was then adjourned by the presiding officer.

Stated Meeting, May 4, 1900.

Vice-President SELLERS in the Chair.

Present, 17 members.

A letter was read from Prof. W. C. Brögger accepting membership.

Acknowledgments of the receipt of the Society's resolutions of April 6, relative to the establishment of a National Standards Bureau, from Prof. Pritchett, Superintendent of the U. S. Coast Survey; the Speaker of the House of Representatives, the Chairman and Messrs. O'Grady and Levy, members of the Committee on Coinage, Weights and Measures; Senator Penrose, and Representatives J. R. Young, H. H. Bingham and R. Adams, Jr.

A list of the donations to the Library was presented and thanks were ordered therefor.

The decease was announced of the Duke of Argyll at London, on April 24, aged 77 years.

Mr. A. Radcliffe Grote presented a paper entitled "Historical Sketches of Gortyna and Allied Genera."

Dr. Sellers called attention to the Hawkins polygraph, formerly the property of and much used by Thomas Jefferson, an ex-President of this Society, and exhibited several letters from Jefferson to the late Charles Willson Peale, devoted to the subject of the polygraph, which he had obtained from Peale.

The Society was adjourned by the presiding officer.

HISTORICAL SKETCH OF GORTYNA AND ALLIED GENERA.

BY A. RADCLIFFE GROTE, A.M.

(Read May 4, 1900.)

The exact determinations of certain North American species of *Gortyna* by Mr. Henry Bird, of Rye, N. Y., which largely rendered the recent revision possible, as well as the discovery of the larval stage of several species by this excellent lepidopterist, make it again a matter of importance to present a sketch of the use of generic titles for the species in literature. While as to the type and use of *Gortyna* I do but sustain my former position, I again correct here my earlier statement that this generic title was originally published by Hübner. I cannot find it in the Tentamen and I have clearly made a mistake in so crediting it in 1876. I am here indebted to the assistance of Dr. Haeberlin, Librarian of the University of Göttingen.

GORTYNA.

1816. Ochsenheimer, *Schm. Eur.*, 4, 82: *Micacea*, flavago.

1816. Hübner, *Verz.*, 232: *Micacea*.

Micacea thus becomes the type, as always stated by me, but only and sufficiently through this restriction. The genus should, there-

fore, be credited to Ochsenheimer, and my former reference to the Tentamen: Buffalo Check List, 37, must be canceled. The error will have happened in copying out my notes, and from its being on my mind that Hübner fixed the type, but its correction practically strengthens my position, as to the use of *Gortyna* for this type, for those nomenclators who still reject the Tentamen; although it is difficult to conceive how this course can be reconciled with the statements printed by Mr. Scudder, Lord Walsingham, and by myself as early as 1875-6, at the same time showing respect for the action of the law of priority. Hübner's use of *Gortyna* indicates that this portion of the Verzeichniss was published *after* Ochsenheimer's volume appeared. Through Hübner the genus *Gortyna* receives for the first time a diagnosis, though but a brief and unimportant one. Ochsenheimer gives no generic characters whatever. It seems to me the present statement must define the right of *Gortyna* to its type, and this beyond peradventure.

1829. Boisduval, *Eur. Lep. Index Methodicus*, p. 84.

Here the name *Gortyna* is credited to Treitschke and referred as a synonym to "*Xanthia mihi*!"

1840. Boisduval, *Genera et Index Methodicus*, 144: cuprea, micacea, flavago, lunata, luteago.

The name *Gortyna* is properly credited now to Ochsenheimer and "*Xanthia*, Boisduval *olim*" referred as a synonym.

1837. Guenée, *Ann. Soc. Ent. Fr.*, 6, 329: celsia, flavago, luteago, micacea, leucostigma.

1852. Guenée, *Sp. Gen. des Lep.*, 5, 120: lunata, xanthenes, mæsiaca, flavago, rutila, marginidens, limpida, nebris, nitela.

Flavago is given as type (p. 122), but this is impossible, since the type of *Gortyna* became *micacea*, through Hübner's action in 1816.

1857. Lederer, *Noctuiden Europa's*, 120: flavago.

But the name *Gortyna* cannot, as above stated, be restricted to this type.

1876. Grote, *Check List of the Noctuidæ of America north of Mexico*, Buffalo, Reinecke & Zesch, 37.

I give here the type of *Gortyna* as *micacea*, but refer the name incorrectly to the Tentamen, 1806. In my lists and other writings,

except where I refer in 1874 and 1882 a group of species to *Apamea*, I use *Gortyna* for the entire genus, so far as the American forms are concerned. In the first catalogue of North American Noctuidæ, in which I brought the material into accord with Lederer's system, as far as then (1874) possible, I followed Guenée's use of the terms *Hydræcia* and *Gortyna* in the *Species Général* (see *Bul. Buff. Soc. Nat. Sciences*, April, 1874). This list of mine in 1874 is the basis of all subsequent lists or catalogues of the North American Noctuidæ.

1882. Grote, *New Check List*, New York, 29.

Here the N. Am. species are divided under two generic titles: *Apamea*¹ (= *Gortyna* Ochs. = *Hydræcia* Guen.) and *Gortyna* Guen. This separation is not tenable, since the thoracic tuftings upon which it is based are variable and the names are moreover wrongly applied. In thus using *Apamea* I really followed Guenée, *Ann. Soc. Ent. Fr.*, 6, 335, who there refers to it: *nictitans* L. and other species not belonging here. My action amounted to a substitution of *Apamea* for *Hydræcia*, which cannot be followed and was subsequently abandoned by me.

1890. Grote, *Revised Check List*, Bremen, Rühle & Schleuker, p. 20.

The North American species, with smooth clypeus, are all referred to *Gortyna*, but the genus is erroneously credited to Hübner (see above).

1895. Grote, *Ab. des natur. Vereins zu Bremen*, xiv, Seite 43-128.

In this list the North American species are referred to *Gortyna*, and the genus is correctly given to Ochsenheimer, under Hübner's restriction in the Verzeichniss. Thus I "finally" use *Gortyna* and not *Hydræcia* for the genus.

By the foregoing sketch the original use and restriction of *Gortyna* in early European literature is exhibited, and I connect this precedent with my use of the term for our American species.

¹ The name "*Apamea stramentosa*" in Canadian lists probably came from me, since I originally determined the species for correspondents in Canada, and am seemingly the only author who referred the species to "*Apamea*." I commenced to determine the Am. Gortynæ in the sixties, for Prof. Riley, Mr. Graef, etc.

Further citations from English and German authors could be given, but since these all postdate the Verzeichniss, which fixed the type, they are without effect upon the result.

My constant use of *Gortyna* is amply vindicated, and it is an unwarrantable innovation, one not authorized by Guenée himself, to use *Hydræcia* for the American species. It matters not that Lederer, with the indifference of his epoch to types and generic nomenclature, mistakingly used this genus for the European forms. It was natural that he should do so, because he only distinguished between *flavago* with a clypeal thorn and all the rest, and he took the only two terms he found in Guenée and applied them both wrongly. *Gortyna* Ochs. is his *Hydræcia*, and his *Gortyna* must be called *Ochria* Hübn. Now, I prevented the American lists from unnecessary changes by adopting *Gortyna* for the whole genus except *Ochria*, and I complain that in the late revision an unnecessary change from my determination has been made. An unfortunate grievance, relating to changes in nomenclature, has been lately again voiced by Mr. H. H. Lyman. But, clearly, if the types are ascertained and the oldest generic titles once for all determined, there will be no further changes, or these will limit themselves to subjective opinions as to the extent of the shifting conceptions we call genera. There will at least always be a certain type, around which the separated genera must cluster and to which the species can revert. For nearly forty years have I been thus investigating the literature and structure of the North American noctuids and trying to fix the right titles and types according to my slender resources and feeble abilities. At the present time a rude and conscious effort is being made to break down my work by misrepresentation or an ignoring of the facts brought forward, as in this matter of *Gortyna*. Take another case: my determination of *Lithophane*. I here have shown that Hübner's *Xylena* was proposed in 1806 for the type *lithoxylea*, with which our *liginicolor*, *auranticolor*, *cuculliiformis*, *hulsti*, etc., agree generically; the larvæ, so far as known, have a thoracic shield. But, in 1816, Ochsenheimer, adopting this genus with its type from Hübner, changed the spelling to *Xylina*, and placed the summer-flying species of *Xylena* together in one category with the autumn haunting species of *Lithophane*. These ill-consorted forms could not so remain, and we find accordingly a separation attempted by subsequent authors. But, in this effort, the original signification of

Xylena was lost, its type *lithoxylea* wandered off and was ticketed as *Xylophasia* by Stephens. This is again a name bearing reference to the woodlike ornamentation and color, broken and pale ochrey yellow or reddish, something like ingrained, fresh oak wood. The name *Xylina* was on the contrary inappropriately retained for the stonelike species of *Lithophane*. Now, I have restored the types and righted this; if I am followed it will clearly save future confusion. It is easy to change now, but, difficult or not, the change must be made hereafter when more painful, unless reason fly and lepidopterology decay. If it is objected that I here validate the Tentamen, I say a document endorsed by Mr. Scudder, Lord Walsingham, Mr. Kirby and Dr. Dyar will, *must* command assent with all the facts for it. It is a battle of literary knowledge, science against prejudice. One would think my work as to *Lithophane* could have been accepted, on the contrary it is sophisticated, the incorrect application of *Xylina* again reverted to, changed back, under what excuse but to differ? Far more attention should be paid not to duplicate specific names in the group, entailing by this neglect the future certain confusion of collectors, and to give always the original description, which alone has scientific value and does not imperil the identification, and finally to avoid undue self-assertion in one's work, but *egregium cum me vicinia dicat non credam?*

OCHRIA.

1813. Hübner, *Verzeichniss*, 233; aurago, oo, *flavago*.

In 1852 oo became the type of *Dicycla* Guen., *aurago* is referred by Guenée to *Citra*, and I was free to limit this title, which else had no type, to the species *flavago*, which has a clypeal thorn and is *sui generis*.

1875. Grote, *Check List*, Buffalo, 11, 22: sauzalitæ.

This American species has also a thorn on the clypeus, which can be felt by passing a fine pin tenderly across the front, but it does not resemble the European species. It looks very much like *Gortyna purpurifascia* or *harrisi*. It comes from San Francisco and the type is in British Museum.

1882. Grote, *New Check List*, New York, 29: sauzalitæ, buffaloensis.

This second species, from the East, has also a thorn, and resem-

bles in appearance rather *Gortyna limpida* or *cerussata*. In my subsequent lists I have kept up this reference. The value of this genus depends on the clypeal protuberance which the species of *Gortyna* lack. It is the same with *Sphida obliqua*, which differs in a like manner from the species of *Arsama*. *Ochria* is thus rather an artificial than a natural phyletic assemblage of species, which seem to have arisen, here and there, out of forms having an unarmed clypeus. Not impossibly are *cataphracta* without and *flavago* with a clypeal protuberance phyletically related, the European species having acquired the projection since the tertiaries.

If *Ochria* be for reason dropped, a new term must be supplied. *Flavago* (ochracea) became virtually the type through Guenée's entire action in 1852. Up to 1875 the term seems to have been neglected.

HYDRÆCIA.

1841. Guenée, *Am. Soc. Ent. Fr.*, T. 10, *Noct. Eur. Index Meth.*, p. 237: cupræa, leucostigma (fibrosa), micacea (cypriaca), *nictitans* (var. fucosa).

This is the earliest mention of *Hydræcia* I can find in literature. No type is mentioned. I cannot positively trace *cupræa*; *cuprea* H. is probably the same and an *Agrotis*; *Leucostigma* is made the type of *Helotropha* Led., 1857, and might apparently have been taken for *Hydræcia*; *micacea* was already the type of *Gortyna* Ochs., in 1816; *nictitans* is apparently congeneric. The anal claspers should not be used for generic or sectional characters, their taxonomical value is cumulative, not independent. To distinguish the American specimens of *nictitans* from the European generically on account of a supposed difference in the anal claspers of the male is an absurdity, and yet this is what the course adopted by the Revisionist really amounts to. If it is "structural," the difference might naturally be considered generic, *i. e.*, higher than specific. But these are secondary sexual characters, not to be used as independent and generic or sub-generic, and I should judge them to be of even less value than the male antennæ. At any rate, solely upon them, no genus in the Noctuids can be recognized and, if no genus, then no section of a genus. Of the foregoing species there remained only *leucostigma* as an unemployed type when *Hydræcia* was proposed. There is no description given by Guenée of the genus *Hydræcia* in the *Index*.

Out of his own knowledge the author of the revision says: "*Hydræcia* was first used by Guenée in 1857, in his essay on the classification of the Noctuidæ," etc. This statement should be noted, because it illustrates the methods employed by Prof. John B. Smith to support his generic determinations. Guenée established *Hydræcia* not in his Essay itself, not in 1857, perhaps a misprint for 1837, but in 1841, in the *Index Method.*, all published in the *Annales*.

As to the statement that I ever "finally" followed example and adopted *Hydræcia*, the references to my last lists under *Gortyna*, show its want of truth. Parallel statements to these and indirect contradictions make up the introduction to the revision of *Acronycta* likewise. These introductions do not contain objective scientific facts, but are written solely to contradict or violently color my actions in the several instances and are simply nosegays of unconscionable and worthless statements, bound together by the one ruling idea that my authority should be broken down, *coute qui coute*. In this case it is fair to presume the author never had the essay in his hands, and intended to copy Guenée's technically incorrect reference in the *Species Général*. There is something painfully morbid about Prof. Smith's writings, a constant troubling himself with what I did or did not do; their publication is less a contribution to the knowledge of the American Noctuids than a proof of his ability to misrepresent and twist the facts with regard to my writings. And, when this Doctor of Science does not hesitate to affirm: that a pupa of *Eudryas grata*, having been conveyed accidentally across the Atlantic, disclosed in London a moth of *E. Stae. johannis*, and this owing to the "vicissitudes of the voyage," a want of causality not beaten by Aldrovandus, and *all* this merely because I had innocently recognized the distinctness of the two species in 1868 and 1882, then I think the limits of idiosyncrasy are overstepped, and we have arrived at the borderland of pathology. It never seems to occur to Prof. Smith that I am not interested that my statements should be adopted by him, but that they should be correct.

1852. Guenée, *Spec. Gen.*, 5, 125: Nictitans, lorea, cuprea, vin-delicia, micacea, immanis, stramentosa.

Lorea has been referred by Herrich-Schaeffer to *Mamestra*; it has hairy eyes. Guenée now indicates as type *micacea*, but this choice is

impossible for it has been since 1816 the type of *Gortyna*. The only one of the original species which afforded an unemployed type is referred back by Guenée to *Apamea*, viz., *fibrosa* (leucostigma). Guenée expressly says he only published *Hydræcia* in the *Index*, but cites: "*Gn. Ess.*, p. 237," for this genus; it is not, however, in any of the textual parts of his essay and the paging is that of the *Annales*. *Hydræcia* is in the *Index*, at the close of the last paper, *Tom.* 10, 217, commencing with the page 235 and running up to page 250 of the *Annales de la Société Entomologique de France*. The title *Essai* is so far misleading, since the series of papers seems to commence in 1837, *Tom.* 6, p. 219, under another title; but it is kept up after a fresh start on page 311, in 1837, continues through 1838 and 1839, skips 1840, to conclude with the *Index* in 1841, as above cited. Prof. Smith writes of it as one might of an independent work, and, perhaps, fancies it is one and that it was published in 1837. But see how plain a tale will put him down.

1857. Lederer, *Noct. Eur.*, 119: *Nictitans*, then under B, with a difference in genitalia, *micacea*, *petasitis* (*vindelicia*), *xanthenes*, *illunata* (*lunata*), *borelii*, *mœsiaca*, *cervago*.

Lederer here extends the genus to all the species, except *flavago*, including type of *Gortyna*. And this is why I supposed that our yellow species, *i. e.*, *rigida*, *purpurifascia*, etc., were congeneric with *micacea*, and should likewise be referred to *Gortyna* and why I regarded the section *Hydræcia* to be the same as *Apamea*, Lederer's section A. For if *micacea* is correctly classified by Lederer as strictly congeneric with *Xanthenes*, it would follow that it is to Prof. Smith's second section that *Hydræcia* belongs and not to his first. But there is clearly but one genus to be considered which must be called *Gortyna*, as I have insisted in all my later lists. In *nictitans* there is an evident tuft on the first abdominal and weaker ones on the two following segments. Lederer's diagnosis should perhaps be here corrected. But the tufts are more or less evident: on thorax, behind the collar and on dorsum of abdomen; there is no uniformity among the species in this respect, and since no use of the anal claspers can be permitted, for it would separate allied and bring together unrelated species, there are no characters upon which we can depend for a sharp division of the genus. If we descend to comparative details there

would have to be very many more groups, at least six or seven, made of our American species.

In final answer to Lederer's being cited as an authority on generic nomenclature, I will state that on page 234 of his work Lederer states unequivocally, in so many words, that he regards the Verzeichniss as of no authority. Consequently, where this work is regarded as of authority, as it now almost universally is, Lederer's nomenclature fails. For his use of Hübner's genera and names is arbitrary and optative merely. There is no method in his selection, and this is reached by no rules of zoölogical nomenclature by which types are ascertained and generic titles assured. Lederer stands entirely outside of the historical method with regard to names of genera, as used, for instance, by Mr. Scudder, Lord Walsingham, Dr. Dyar, and modern authors perhaps generally. It is a distinct part of Prof. Smith's insincerities to conceal this fact.

1874. Grote, *Bul. Buf. Soc. N. S.*, 1874, April-May, 18: *nictitans*, sera, inquæsita, + salicarum (unidentified).

Type correctly given as *nictitans* and genus correctly dated 1841. (Why is this citation ignored by Prof. Smith?) Through Guenée's action in 1882, *nictitans* became virtually the type of *Hydræcia*. In 1890 and 1895 I refer *Hydræcia* as the same as *Gortyna*, and it can only be independently used if *nictitans* be made a generic type, for which there seem to be but insufficient characters. Since no description or type is given by Guenée originally, and since the selected material is incongruous to a degree, the term *Hydræcia* has the slightest possible claim to consideration. A most perfect example of Guenée's neglect of natural characters is afforded by his statement in 1852, that *lorea*, with hairy eyes, confirms him in the opinion that *cuprea*, with naked eyes but armed tibiæ, belongs to *Hydræcia* and to the same group!

To give a resumé of our North American species as left by me :

Gortyna Ochs, 1816.

Type : *G. micacea*.

= *Hydracia* Guen. 1841.

Type : *G. nictitans*.

sera* G. and R.,	harrisi Grote,
obliqua* Harvey,	rigida Grote,
immanis Guenée,	cerina Grote,
stramentosa Guenée,	speciosissima G. and R.,
u-album* Guenée,	rutila Guenée,
<i>purpurifennis</i> Grote,	cerussata Grote,
juvenilis Grote,	limpida Guenée,
erepta Grote,	marginidens Guenée,
nictitans* Linné,	appassionata Harvey,
<i>lusca</i> Harris,	impecuniosa Grote,
<i>americana</i> Spezer,	cataphracta Grote,
var. erythrostigma Haworth,	nitela Guenée,
(a Calif. form comparable with	var. nebris Guenée,
var. lucens Fr.),	necopina Grote,
inquæsitæ G. and R.,	serrata* Grote.
purpurifascia G. and R.,	

Ochria Hübn., 1816.

Type : *O. flavago* (ochracea).

sauzalitæ Grote,	buffaloensis Grote.
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Helotropia Led., 1857.

Type : *H. leucostigma*.

reniformis Grote,
var. atra, Grote.

This last may not be distinct from the European species, but the material compared shows certain points of distinction. Both these latter generic names are subsequent to the establishment of *Gortyna* with *micacea* as type, which is simply the oldest generic title in the group and, from every point of view, is entitled to priority and acceptance.

Previous to his visit to the British Museum the author of the recent Revision depended for his knowledge of most of the described species of *Gortyna* upon determinations originally made

by me in various collections between 1862 and 1883. The London collection found him unprepared, as may be seen by the effect upon him of the striking type of *appassionata*, a species, nevertheless, difficult to determine, and the description of which in the Revision accords but illy with Dr. Harvey's original. And from the slur thrown upon *necopina*, in reality one of the most remarkable and easily identified of the series. Nor were his studies there at all carefully and scientifically conducted, for which there is abundant proof, but with a bias and intent to break down at all hazards my determinations. Here he has neglected to take notes of the type of *erepta*, which he saw in the British Museum (*Wash. Cat.*, 175), but now states, with singular accuracy, is "unknown" to him (*Rev.*, 48). Returned to America, the author of the Revision became really indebted for his knowledge of species like *purpurifascia*, *harrisi*, *impecuniosa*, *necopina*, to Mr. Henry Bird and Dr. Roland Thaxter. That thus, without sufficient antecedent studies of his own, he should have ventured to appear as an authority upon a group to which he has certainly contributed doubtful determinations and inferior and useless redescriptions (as to *marginidens* he does not give the character of the dentate fringe, properly given by Guenée), together with at least one or two bad drawings of the genitalia, throws a strongly unfavorable light upon his public performances. He gives no credit for specific determinations where these are due to others, as is here plainly the case. The value of his judgment is tested by his statement, that the most distinct of all our species, *speciosissima*, only escaped the sad fate of being put down as one sex of our *inquasita*, by the accident that both sexes of the latter were before him in the amassed collections, which touchingly testify alike to the weakness and the amiability of their rightful owners.

The beauty of several of the species leads me to say a final word on the æsthetic value of insects like *Gortyna*. This division of the subject should be more seriously studied. Color and form are constituent parts of the object, and after the intellectual difficulties attending structure and nomenclature are surmounted, these remain as sufficient reason for our attention. When Science is finished, Art takes the matter up. Unless it be the wing of some butterfly, or petal of some flower, there is probably no similarly sized surface in the world more exquisite than the primary wing of *Gortyna impecuniosa*, when the moth is fresh or bred. It has all the depth which comes from a blending of rich dead colors. The

pattern itself is conventional. It has no conscious model, but is woven by the artistic imagination, as the tufted Persian carpet upon which one flies from Bagdad to Bassorah. The minds of educated persons, poets and painters, should be directed to pretty moths, such as our cloth of gold *Gortynæ*.

Stated Meeting, May 18, 1900.

Vice-President WISTAR in the Chair.

Present, 22 members.

A letter was read from the K. K. Geologische Reichsanstalt of Vienna, announcing the fiftieth anniversary of its founding and inviting this Society to be represented on the date set, June 9, of this year.

A letter was also read from the Royal Saxon Antiquarian Society of Dresden, announcing the seventy-fifth anniversary of its founding and inviting this Society to be represented on the date set, September 26 next.

It was ordered that the receipt of these communications be acknowledged by the Secretary with thanks.

The following were elected members of the Society :

Dr. Cyrus Adler, of Washington.

Dr. H. F. Keller, of Philadelphia.

Hon. Edward Patterson, of New York.

Hon. George Gray, of Wilmington.

Wharton Sinkler, M.D., of Philadelphia.

Mr. Sachse presented to the Society a facsimile of the first German newspaper published in North America, printed by Benjamin Franklin in 1732. The thanks of the Society were tendered Mr. Sachse for the gift.

Special Meeting, June 19, 1900.

President FRALEY in the Chair.

Present, 11 members.

The report of the judges appointed to make the award of the Henry M. Phillips prize was presented, from which it appeared that the Committee had awarded the prize to essay No. 11, by "Hesperius," with honorable mention of essay No. 9, by "Mark."

The award of the Committee was duly ratified, and the prize of two thousand dollars directed to be paid to the author of essay No. 11.

The envelope No. 11 having been opened, it appeared that the essay endorsed "Hesperius" was written by Hon. W. G. Hastings, of Wilber, Neb.; the envelope No. 9, endorsed "Mark," was written by Max I. Kohler, M.A., LL.B., of New York city.

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350
72

PROCEEDINGS
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AMERICAN PHILOSOPHICAL SOCIETY
HELD AT PHILADELPHIA FOR PROMOVING USEFUL KNOWLEDGE.

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No. 103

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DECISIONS RELATING TO THE POLICE
POWER OF THE STATE.

BY W. G. HASTINGS, ESQ.,

OF WILDER, NEBRASKA.

*The Grounds Essay for which the Prize of two thousand dollars was awarded, on
June 19, 1900, from the Henry M. Phillips Prize Essay Fund, by the Committee
of Judges appointed by the American Philosophical Society held at Philadel-
phia for Promoting Useful Knowledge.*

COMMITTEE OF JUDGES.

GEORGE F. EDMONDS, Vermont.

S. W. PENNYPACKER, Pennsylvania.

GEORGE WILSON PETER, Pennsylvania.

GEORGE GRAY, Delaware.

EDWARD PATTERSON, New York.

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It is requested that the receipt of this number of the Proceedings be acknowledged to the Secretaries.

Members who have not as yet sent their photographs to the Society will confer a favor by so doing; cabinet size preferred.

PROCEEDINGS
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VOL. XXXIX.

SEPTEMBER, 1900.

No. 168.

THE DEVELOPMENT OF LAW AS ILLUSTRATED BY
THE DECISIONS RELATING TO THE POLICE
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BY W. G. HASTINGS, ESQ.,
OF WILBER, NEBRASKA.

The Crowned Essay for which the Prize of two thousand dollars was awarded, on June 19, 1900, from the Henry M. Phillips Prize Essay Fund, by the Committee of Judges appointed by the American Philosophical Society held at Philadelphia for Promoting Useful Knowledge.

(Read June 19, 1900.)

Es ist an einem andern Orte dargelegt dass das Recht seinem Inhalt nicht aus der Entwicklung des Rechtsbegriffes, sondern aus dem Leben empfängt für welches es gilt. Dieses Leben ist daher die rechtsbildende Kraft.—Stein, "*Handbuch*," S. 41.

Platon remercioit le ciel de ce qu'il étoit né du temps de Socrate; et moi je lui rends grâces de ce qu'il m'a fait naître dans le gouvernement, où je vis, et de ce qu'il a voulu que j'obéisse, a ceux qu'il m'a fait aimer.—Montesquieu, "*L'Esprit des Loix*," *Preface*.

CHAPTER I.

INTRODUCTION OF THE TERM THROUGH EARLY FEDERAL
DECISIONS.

The Police Power is a well recognized if not yet fully defined department of constitutional law. It is also the newest one of anything near equal importance. The 1898 edition of Bouvier's *Law Dictionary* says that the law on this subject is all of recent growth, and most of it is in the last half of the nineteenth century. It could not consistently say otherwise. The work as originally published in 1839 did not define the phrase "Police Power" nor even contain it. The thirteenth edition in 1867 did not have it. It was only in 1883 that this standard dictionary of law first ex-

¹ Copyrighted, 1900, by W. G. Hastings.

plained the phrase. The voluminous *United States Digest* did not include the phrase, either in its original edition or in its revision in 1873, among its separate headings, nor among its subdivisions of constitutional law. It was not until 1879 that it began to appear among the subdivisions of constitutional law in the annual supplements of that work.

It is, as appears clearly enough from our decisions, a branch of constitutional law peculiar to countries having legislatures with limited power. It is an outgrowth of the American conception of protecting the individual from the state. It originated in connection with the discussion of the limitation on the legislative powers of the states under our federal system. The name itself seems to have been introduced by Chief Justice Marshall in the case of "*Brown vs. Maryland*" in 1827. A somewhat careful search for the phrase fails to find it in legal or political writings of this country prior to that time. The combination of its terms seems to be still unknown on the other side of the Atlantic, notwithstanding that both words come to us from the French, and its suggestion is distinctly traceable to Montesquieu.

It was entirely natural that it should appear in a decision of our Federal Supreme Court and from Chief Justice Marshall.

Sir Henry Maine says, that popular government in modern times was first redeemed from general distrust and suspicion by the overwhelming success in the United States of a body of Englishmen, who from circumstances

"had never had much to do with an hereditary king and an aristocracy and who had determined thenceforth to dispense with them altogether."¹

With all deference to a great name, the absence of kings and nobles was not the governing feature of the situation when the fathers of the republic took in hand the task of framing that government which was to take away forever, let us hope, the ill fame of popular institutions. The condition which was the most important factor seems to have been this: that body of Englishmen of American birth to whom the great task fell were already organized into thirteen states to which they were enthusiastically attached. These states from their origin had been in most respects

¹ *Pop. Govt.*, p. 11.

governed by elective legislatures with limited powers under the sovereign supervision of Great Britain.

In settling this country, whether from circumstances or from a race instinct which had been before exemplified in the Saxon Heptarchy, they divided into several separate communities. Here they had no Danes to the east, no Scotch or Irish to the north and west, no French upon the south to hammer them into a single state by repeated blows. Barely enough of threats and pressure from the outside they had to maintain the feeling of common origin and common destiny. Even this was maintained more by the common bond that united them all to the mother-country. That mother was sometimes severe, often selfish and still more often negligent. They could, however, look with confidence to her to protect them from other European interference. Such enemies as they had on this side of the ocean they soon proved able to cope with in their own strength.

Their distance, the peculiarities of their situation and their own self-reliance was a guarantee sufficient that men who had been taught to work such organizations would form local legislative bodies, and they did. Their own weakness and the temper of the British government was an assurance that its sovereignty over them would not be forgotten. The legislative powers of the colonial assemblies in the nature of things must expand with every step in the growth of the colonies, and however clearly the limitation on those powers, imposed by the sovereignty of the British Crown and Parliament, might be marked in theory, a wider and wider function must necessarily fall to these colonial legislatures.

The British doctrine of the supreme authority of Parliament soon collided with these growing legislative powers, and when the two became incompatible it was thrown off. The confederation of the colonies was brought about by the revolutionary struggle and lasted through it, although in the meantime its weakness became thoroughly apparent. It proved entirely ineffectual to hold together the thirteen colonies after peace. So it came that when the problem of putting an efficient substitute in the place of the confederation was met, the most important element in that problem was the existence of the thirteen state governments that were occupying the ground. The confederation was dead and, as the Hibernicism has it, was conscious of it. It offered no resistance.

The thirteen colonies, fortunately, had, for the most part, con-

stitutions made to fit the articles of confederation. Those still living under their colonial charters, of course, had organizations designed to work in subordination to Great Britain. All were thus intended from the beginning to operate under some sort of external authority. Such adaptation had not been difficult for a people who, with large freedom for self-government, had from the beginning down to the commencement of revolutionary troubles been sincerely loyal to the British Crown and gloried in its supremacy. Many of the state constitutions of the colonies had been adopted during the struggle for independence, and under such circumstances these constitutions naturally were not of a separatist character.

There seemed to these "Englishmen" of America at that time nothing absurd or impossible in the idea of a divided political sovereignty. That sovereignty, or what they, following Vattel and Blackstone,¹ regarded as such, the power to make and enforce laws, was indivisible, they utterly denied. Hamilton in *The Federalist* answered the objection that sovereignty was indivisible, simply by saying that it is absurd to argue the impossibility of what both is and has been. So when they found the confederation could not care for their common interests, and that the formation of separate confederacies was imminent, moved not by fear of enemy from without, but by that spectre of "states discordant, dissevered, belligerent," which so haunted Webster to the end of his life, and so prophetically as events proved, they proceeded to build after the model of their several state governments a national government extending over the whole but resting down directly upon the people to which should be committed just those common interests of the states and nothing else. So much of the old fabric of the confederation as they could use was employed. The rest they threw away.

The very completeness with which the state government had already occupied the ground became, and still constitutes, the prime condition of the success of the national organization. This fact rendered possible the complete specialization of the national government for national purposes, which at once makes it strong for such purposes and prevents conflict with local authority. This specialization of action on the part of the general government was

¹ *Blackstone Com.* i, 49; *Le Droit des Gens*, sec. 38.

² *Federalist*, No. 39, Lodge edition, p. 195.

not made by means of definitions, but by assigning it functions, and functions already waiting to be taken up, which the states, in adopting the constitution, recognized their own inability to perform. Hence the marvel of that successful working of this complex machine, which Bagehot said he would have had no hesitation in saying beforehand was impossible.¹

The remnant of power left in the states, after making room for this federal "supreme law of the land," is called by the authors of *The Federalist* the "residuary sovereignty,"² but that name seems not to have obtained generally, perhaps because it served no one's political needs. It is hard to find it outside of *The Federalist*. It suited those who wished to magnify the states and who feared the growth of power on the part of the national government to omit the qualifying adjective. It suited those to whom encroachments and separatist tendencies on the part of the states were a terror not to couple the words "States" and "Sovereignty" together, even with the qualification. So this truncated sovereignty remained without a name, and the powers exercised by the states were specially designated by various terms as "power of taxation," "eminent domain," "public justice," and "police regulations."

The introduction of the term "Police Power" seems to have been by Chief Justice Marshall, and it came to him by degrees. In the Dartmouth College case itself, he seems to have clearly prefigured in his mind the principle that was later to be used so successfully in limiting the extension of the doctrine of corporate inviolability contained in that decision. He does not, it is true, in terms mention the Police Power. Neither did the great lawyers who argued that case. He says, however,³

"that the framers of the constitution did not intend to restrain the states in the regulation of their civil institutions adopted for internal government, and that the instrument they have given us is not to be so construed may be admitted."

The Dartmouth College case,

"that remarkable result of the disagreement of two clergymen, both of

¹ *British Constitution*, Chap. 8.

² *Federalist*, No. 39, p. 238, Lodge's edition. *Id.*, No. 43, p. 275. *Id.*, No. 62, p. 386.

³ *4 Wheat.*, 629.

whom were employed in the same institution of learning, as to the relative merits of the Congregational and Presbyterian church creeds and church governments, which has produced such effects on business and legislation in this country,"

was decided in 1819. In 1824, in deciding the case of *Gibbons vs. Ogden*, the chief justice comes still nearer the conception and the word :

"If Congress licenses vessels to sail from one port to another in the same state, the act is supposed to be necessarily incidental to the power expressly granted to Congress, and implies no claim of a direct power to regulate the purely internal commerce in the state or to act directly on its system of police."¹

Again, a little farther on in that opinion that has done so much toward the unifying of our country he said :

"The acknowledged power of the state to regulate its police, its domestic trade and to govern its own citizens may enable it to legislate on this subject to a considerable extent."²

Again, a little farther on, after commenting on the argument that the word "regulate" gave Congress an exclusive power and declining to decide that, he adds :

"Since, however, in exercising the power of regulating their own *purely internal affairs whether of trading or police*, the states can sometimes enact laws the validity of which depends upon their interfering with and being contrary to an act of Congress passed in pursuance of the constitution, the court will enter upon the inquiry whether the laws of New York, as expounded by the highest tribunal of that state, have in their application in this case come into collision with an act of Congress and deprived a citizen of a right to which that act entitles him."³

He has not yet quite reached the term, but the conception is almost, if not quite, complete. In this case, as in the *Dartmouth College* case, the thought is suggested by the arguments of counsel and clarified in statement by the chief justice.

Three years later, in 1827, in *Brown vs. Maryland*,⁴ he had under consideration a requirement by that state, that every importer of foreign goods should, before selling them, obtain a license and pay for it fifty dollars. He was pressed by Taney's ingenious argument, that to hold this a violation of the constitu-

¹ 9 *Wheat.*, 204.

² 9 *Wheat.*, 208.

³ 9 *Wheat.*, 210.

⁴ 12 *Wheat.*, 419.

tional prohibition against the state's taxing imports, and also of the clause giving Congress the regulation of foreign commerce, would cripple the state at once in both its power of taxation and its power to protect itself against dangerous importations, such as gunpowder; and the states would be powerless to prescribe proper regulations for the handling of such articles in the protection of their citizens. Taney's claim was, that the force of the constitutional provision must cease when the goods were landed and placed in store, or the state lose all control of traffic that might be in the last degree dangerous and state and citizens alike be deprived of the right of self-preservation.

The chief justice denied the consequence, but not the right of the state, in holding the act of the state repugnant both to the constitutional provision against a state tax on imports and to various acts of Congress establishing duties on imports. He referred to the example brought by his future successor in these terms:

"The power to direct removal of gunpowder is a branch of the police power which unquestionably remains and ought to remain with the states."

This seems to be the advent of the phrase into legal discussions in this country. An examination of various writings where it would naturally occur, if already in use, does not find it. It is noticeably absent from the opinion of Attorney-General Wirt¹ as to the constitutionality of the South Carolina laws excluding free colored seamen from her port. This opinion was given in 1824, three years before the decision of *Brown vs. Maryland*, and the phrases of *Gibbon vs. Ogden* concerning the powers of the state are the ones reproduced in it.

The case of *Brown vs. Maryland* did not suffice to put the phrase "Police Power" into immediate currency. The opinion of Attorney-General Berrien given in 1831,² in contradiction to that of Mr. Wirt, also contains no use of these terms. The phrase would inevitably occur in any similar discussion within the last fifty years, but both of these eminent lawyers use the terms "right to maintain its own police regulations," "established regulations of police" and similar phrases such as Blackstone and Kent both

¹ *Ho. Rep.*, No. 80, 3 Sess. 27th Cong.

² *Ho. Rep.*, No. 80, *supra*.

furnish, and such as abound in *The Federalist*. Indeed, John C. Calhoun in his famous resolution of 1837¹ does not yet use the combined phrase. He claims for the states "the exclusive and sole right over their own and domestic institutions and police." But it was in these times of exciting discussion as to the nature of the Union that the phrase did become current. After remaining buried for ten years in the official report of the case of *Brown vs. Maryland*, and when its author had gone to his last sleep, it was brought forth in 1837 once more, and was not soon to go to rest again.

The case of the Mayor of the City of New York *vs. Miln*² had been argued before the court in Marshall's lifetime, in 1834. The chief justice had announced that, excepting in cases of absolute necessity, decisions on constitutional questions would not be rendered unless four judges, then a majority of the court, should concur. In this case there had not been such a concurrence, and it was ordered to be reargued. In 1836, Taney had succeeded Marshall. Before that Wayne had taken Johnson's place, and shortly after Barbour was to take Duvall's. Johnson had died in 1834. Taney had been nominated to Johnson's place, and the influence of Clay and Webster combined had prevented the confirmation, although Marshall had done all that he thought consistent with the position of chief justice of the court to procure the confirmation. After Marshall's death in 1835 Taney was appointed chief justice and his appointment this time confirmed, and with the court thus completed the case of the Mayor of New York *vs. Miln* was again argued and the opinion rendered in 1837 by Judge Barbour.

The question was whether an act of the state of New York requiring the master of every vessel arriving at that port to render to the city authorities within twenty-four hours after such arrival a statement of the name, place of birth, legal settlement, age and occupation of every passenger coming from a foreign country or other state, and fixing a penalty of twenty-five dollars upon master, owners and consignee for each passenger not so reported, was a valid law, or was void as being repugnant to the power of Congress to regulate foreign and interstate commerce and to acts passed in pursuance of such power. The court found the act valid. Judge Story dissented, and declared that the late chief justice had held

¹ Calhoun's works, Vol. iii, p. 140.

² 11 *Pet.*, 102 (1837).

the opinion that the act was unconstitutional and an infringement on the power of Congress.

In the opinion, Judge Barbour quotes Marshall's words in *Brown vs. Maryland*, as follows:

¹ "The court admits the power of a state to direct the removal of gunpowder as a branch of the police power which unquestionably remains and ought to remain with the state."

Judge Thompson in his concurring opinion says:

² "Can anything fall more directly within the police power and internal regulation of the state than that which concerns the care and management of paupers or convicts or any other class or description of persons that may be thrown into the country and likely to endanger its safety or become chargeable for maintenance?"

Just above this he, too, quotes from *Brown vs. Maryland* the remark that control of the removal of gunpowder is a branch of the police power of the state.

That the phrase was not yet the recognized and accredited representative of the idea or ideas involved is shown clearly enough by these two opinions. It occurs only in the connection given, and it evidently occurs there only because of the dead chief justice having used it in *Brown vs. Maryland*. Elsewhere throughout the two opinions Justices Barbour and Thompson both use the phrases of Blackstone and *The Federalist*—"Power of state to regulate its police," "Internal police of the state," "Power to regulate internal police," "Powers to enact such laws for her internal police as it deems best," "Purely internal affairs whether of trading or police," and the law is styled "A mere regulation of internal police." The conclusion is announced that "The act is not a regulation of commerce but of police." These are all phrases drawn apparently through Blackstone, *The Federalist*, and James Wilson from Montesquieu.³

The test of the distinction between regulations of commerce and those of police is sought in the end proposed by the legislature and the means used. The end is found to be to prevent the commonwealth of New York from being burdened by the influx of an undesirable population from foreign countries or other states. The means for

¹ 11 *Pet.*, 142.

² *Id.*, 148.

³ *L'Esprit des Lois*, Book 20, chap. 14; Book 26, chap. 24; Book 26, chap. 11.

that purpose provided in the act under consideration was an immediate report from shipmasters of names, places of birth, etc., of all passengers, that the city authorities might take the necessary steps to prevent their becoming a public burden as paupers or criminals. Marshall in *Gibbon vs. Ogden* is quoted as to the

¹ "immense mass of legislation not surrendered to the general government, all of which can be most advantageously exercised by the states themselves."

The place in which the act takes effect is wholly within the state. Marshall's opinion in *Gibbon vs. Ogden* is once more quoted for his luminous remark that

² "if a state in passing laws on a subject acknowledged to be within its control, and with a view to those subjects, shall adopt a measure of the same character with one Congress may enact, it does not derive its authority from the particular power which has been granted to Congress, but from some other which remains with the state, which, however, may be executed by the same means. All experience shows that the same measures, or measures scarcely distinguished from each other, may flow from distinct powers, but this does not prove them identical, although the means used in their execution may sometimes approach each other so nearly as to be confounded, yet there are certain situations in which they are sufficiently distinct to establish their individuality."

Judge Barbour finds the authority for the state of New York to pass the statute under consideration in what would now at once be called the "Police Power," although, as stated above, he only uses the phrase in quoting from Chief Justice Marshall. He says he places himself upon

³ "impregnable positions" "that a state has the same undeniable and unlimited jurisdiction over all persons and things within its territorial limits as any foreign nation where that jurisdiction is not surrendered or restrained by the constitution of the United States; that by virtue of this it is not only the right but the bounden and solemn duty of a state to advance the safety, happiness and prosperity of its people and to provide for its general welfare by any and every act of legislation which it may deem conducive to these ends where the power over particular subject or the manner in which it is exercised is not surrendered or restrained in the manner just stated; that all those powers which relate to merely municipal legislation or what may, perhaps, more properly be called internal police, are not thus surrendered or restrained, and that

¹ 9 *Wheat.*, 203.

² *Id.*, 204.

³ 11 *Pet.*, 139.

consequently, in relation to these, the authority of the state is complete, unqualified and exclusive."

"We are aware," he continues, "that it is at all times difficult to define any subject with proper decision and accuracy. If this be so, in general, it is emphatically so in relation to a subject so diversified and multifarious as the one which we are now considering. If we were to attempt it, we should say that every law came within this description which concerns the welfare of the whole people of the state or any individual within it, whether it related to their rights or their duties; whether it respected them as men or as citizens of the state; whether in their public or private relation; whether it related to the rights of persons or of property of the whole people of the state or of any individual within it, and whose operation was within the territorial limits of the state, and upon persons and things within its jurisdiction. But we will endeavor to illustrate our meaning rather by exemplification than by definition."

He proceeds then to illustrate this power by the extent to which these same passengers and shipmasters and owners would be subject to the jurisdiction of New York in civil and criminal actions to enforce liabilities they might be under or punish offenses they might have committed, all in total disregard of the fact that they were passengers from a foreign country, or their vessel engaged in foreign or interstate commerce.

Evidently what the court was in this case deciding was simply that the law in question was a proper exercise of what is called in *The Federalist* "the residuary sovereignty of the state." Notwithstanding Judge Story's dissent and his assertion that Marshall was with him in thinking the law unconstitutional, it is possible now to conclude that it was so even on Marshall's own principles. This appears from the ¹ comment on the case in the *North American Review* which followed the publication of the official report of it in the eleventh volume of *Peters' Reports*. This case appeared in that volume, together with the famous cases of *Briscoe vs. Bank of Kentucky* and *Charles River Bridge vs. Warren Bridge*. The reviewer, who thinks they make a great new departure on the part of the Supreme Court and who mourns bitterly the way things have changed since the great chief justice died, admits that there would be little to complain of in the result of the decision if it were a new question and the result not upheld by such radical reasoning. The objection he urges is that it marks a change of tendency on part of the court and a disposition to uphold the authority of the

¹ Vol. 46, p. 126.

states as against that of the general government. In fact, his only serious objection to Judge Barbour's reasoning is that it results in his finding an authority in the state "complete, unqualified and exclusive."

The reviewer does not use or note the phrase "police power." This review, like the opinions filed in the case, shows how far the phrase still was from occupying the field. The famous case of ¹ Charles River Bridge *vs.* Warren Bridge furnishes a still stronger proof that the phrase had not yet established its position. This case, as above stated, appeared also in the eleventh volume of *Peters' Reports*. Chief Justice Taney's opinion of the court, with Justice McLean's concurring opinion on the ground of want of jurisdiction and the dissenting opinion of Judge Story altogether cover one hundred and fourteen pages of the book. The court is believed to have intended to set up the police power, as since understood, to serve as a limit upon the doctrine of the Dartmouth College case. The holding is that a state charter to a bridge company which does not in terms grant any exclusive rights cannot be construed into a contract on the part of the state not to make or authorize to be made another bridge over the same stream in the immediate vicinity of the first, nor to prevent the turning of the second bridge into a free public one to the ruin of all value in the first franchise.

The powers of legislation left with the states, and the relation of those powers to the prohibition in the federal constitution against the impairing on the part of any state of the obligation of contracts, is the subject of Chief Justice Taney's profound investigation. Perhaps they have never been set forth in better or more impressive terms. But the nearest he comes to using the phrase "police power" is in this statement:

"We cannot deal thus with the rights reserved to the states and by legal intendment and mere technical reasoning take away from them any portion of that power over their own internal police and improvement which is so necessary to their well-being and prosperity."²

With the question whether vested rights were disturbed the court declines to concern itself under the constitution as it then existed. The other opinions in the great Bridge case contained nothing even suggesting the name by which this power is now known.

¹ 11 *Pet.*, 420 (1837).

² 11 *Pet.*, 552.

At the time of the rendition of these two judgments, *City of New York against Miln* and the *Charles River Bridge vs. Warren Bridge*, the question of the relations of the states to the federal government had become a burning one. The nullification controversy had come and gone, or rather had been compromised. This had scarcely dealt directly with the powers reserved to the states. It had rather concerned itself with the question of what the national government might do in executing its own admitted functions. As a result of it, however, the states were pushed forward by Calhoun and his supporters. The discussion showed that open defiance of the federal government would not be supported, at least with Andrew Jackson at the head of that government and with Webster in the Senate to explain its constitution; but behind nullification was the slavery controversy.

In 1831 Garrison had established his *Liberator*, and had gotten into jail because of it. He had become, in the eyes of many, a martyr for liberty. The slave rising at South Hampton, with the slaughter of some sixty white people, had taken place shortly afterward. Then Calhoun had precipitated his famous slavery debate and begun to preach his cult of state sovereignty. The irritating controversy over the South Carolina exclusion laws had been going on for some years. Marshall then died. By the act of March 3, 1837, just as these decisions were published, three new judges had been added to the number constituting the Supreme Court, with the design, as many thought, of overruling his federalist judgments. Public attention was, therefore, at once called to this case of the *City of New York vs. Miln*, and to the sustaining of the power of the state to enact the restrictions against shipmasters and ship-owners, brought by this case to the consideration of the court, and to the terms of the decision. President Jackson, in his annual message to Congress in 1835, had made his famous recommendation that abolition literature be excluded by act of Congress from the mails, and Calhoun and the Senate had reported that Congress had no authority to do so.

The pungent phrase of Judge Marshall was adapted for a catch word. The very indefiniteness of the conception under it compelled a definite word in popular discussion. The vast and vague notion of the powers of the state, rendered still more so by taking from it the still more vague conception of the national government and its powers, manifestly never would do to make a popular catch

word in stump speeches, newspaper articles and street-corner discussions. If a subject is not simple, treat it nevertheless as if it were and trim it into simple phrase, is the rule of the newspaper and the hustings. There was no candidate among all the phrases that discussions had to that time developed that could compare with Marshall's "police power" as a brief formula for the expression of the federalist idea of the state's functions in the federal system. So into the current discussion it went.

The glibness with which politicians were now soon talking about the Police Power, and citing the case of the City of New York *vs.* Miln, is shown by House Report No. 80, third session of the Twenty-seventh Congress. An examination of this report and the documents accompanying it, and the comparison of these with antecedent state papers and writings upon similar subjects, would seem sufficiently to indicate the genesis of the term. The resolutions offered by Mr. Winthrop in connection with the report show how completely the term had gotten into legal and popular use by 1843, and also its relation to the burning political questions then already preparing the country for civil war.

They are, First, That the arrest and imprisonment of colored seamen from other states without charge except that of entering a port of the United States on lawful business is a violation of article 4, section 2, of the constitution of the United States. Second, The seizure of such seamen from foreign vessels entering our ports is a breach of comity and of treaty rights, and a violation of article 6 of the constitution of the United States. Third, Laws forbidding seamen of other states or countries from entering ports on lawful business are a violation of the exclusive power of the general government to regulate commerce. Fourth,

"Police Powers of states can justify no enactment or regulations in direct, positive and permanent conflict with express provisions or fundamental principles of the National Compact."

These resolutions show the currency of the phrase. Mr. Rayner, in his minority report, no less than Mr. Winthrop for the majority of the committee, makes the same use of the terms, and the report sufficiently shows that the source is the case of Mayor of New York *vs.* Miln, just as that case in turn shows that it derives them from Judge Marshall's opinion in *Brown vs. Maryland*. These resolutions were, on March 2, 1843, tabled in the House of Repre-

sentatives by a vote of eighty-six to fifty-nine without discussion on the part of their opponents. Even then few ventured to dispute the constitutional principles declared in them. However this declaration was treated, the "Police Power" was thenceforth to be retained within the jurisprudence as well as in the politics of America and under that title. We have seen the term "Police Power" originate in *Brown vs. Maryland*, and brought into currency in the case of *New York vs. Miln*. Its next appearance in the federal Supreme Court, no longer used tentatively and as a briefer substitute for fuller expressions, is in ¹ *Prigg vs. Pennsylvania* in 1842. In this case the Fugitive Slave law and the right of a state to legislate on the subject of the rendition of fugitive slaves first came before the Supreme Court. It had no difficulty in agreeing that the law of Pennsylvania under which the plaintiff had been indicted and found guilty of removing a mulatto woman by force from Pennsylvania into Maryland was repugnant to the acts of Congress on that subject, and therefore void.

The judges, however, could not agree as to whether Congress alone might legislate on this subject, or whether the states also might take action to enforce the constitutional right to such rendition of fugitive slaves, so long as they did nothing contrary to the acts of Congress. Those of the judges who were able to agree among themselves on that subject were unable to agree as to why they agreed about it, and so, after the fashion which began to prevail in that court after the death of Chief Justice Marshall, all of the judges except two gave separate opinions.

Judge Story gave the opinion to the court, and after holding in terms almost as sweeping as those which were afterward to arouse so much indignation in the *Dred Scott* case that the constitution recognized property in slaves, after saying that the right to hold slaves and claim their extradition is

"an absolute and positive right and duty pervading the whole Union with an equal and supreme force and uncontrolled and uncontrollable by state sovereignty or state legislation,"

he holds that the maintenance of such right so established by national authority is confided solely to Congress as the national legislature. Then, as he says,

¹ "to guard against any possible misconstruction" . . . "we are by

¹ 16 *Pet.*, 539 (1842).

² 16 *Pet.*, 625.

no means to be understood in any manner whatsoever to doubt or interfere with the police power belonging to the states in virtue of their general sovereignty. That police power extends over all the subjects within the territorial limits of the state, and has never been conceded to the United States" "It is entirely distinguishable," he says, "from the right and duty of claiming and delivering slaves which comes from the constitution of the United States."

He has no doubt of the jurisdiction of the state in exercise of such police power to arrest, restrain or remove runaway slaves, like other evil-doers.

"The rights of the owners like those of other property holders are held subject to this police power." "But such regulations can never be permitted to interfere with or obstruct the just rights of the owner to reclaim his slaves derived from the constitution of the United States, or with the remedies prescribed by Congress to aid and enforce the same."

In the same case Chief Justice Taney's concurring opinion, while disagreeing as to the exclusiveness of the right in Congress to legislate on the matter of fugitive slaves, also discusses the relation of that subject to the police power, or, as he calls it, "police powers." Evidently, it was hard for the great lawyer to take up the new phrase, and harder still for his logical mind to ignore the incongruous elements embraced within it. The logic with which he assails Judge Story's assertion of complete exclusiveness of right on the part of Congress to deal with this fugitive slave question is interesting in itself, and still more so in its relation to the later cases, notably the "original package case" of *Leisy vs. Hardin*,¹ and its assertion of a like exclusive power in Congress over interstate commerce.

It seems hard to avoid Judge Taney's² conclusion that legislation of the states which contravenes neither the right as granted by the Constitution, nor the remedies enacted by Congress for its violation, must be unobjectionable. We are not, however, at this moment so much concerned with this question of exclusiveness of Congressional power. Its connection with the development of the police power was then disclosed only in the beginning. The long debate among the Supreme judges as to whether legislation of the states on various commercial subjects should be sustained as an exercise

¹ 135 U. S., 100.

² See Webster's speech of March 7, 1852, in Senate.

of the police power, or as the employment of a subordinate authority in the states to legislate upon interstate and foreign commerce in fields where Congress had not yet entered, was here a little varied. The question here was whether the police power of the states was a distinct and exclusive or a related one and concurrent with that of Congress over fugitive slaves.

After discussing unsatisfactory results that might ensue if the states were not permitted to legislate in certain ways as to fugitive slaves the Chief Justice says,

"It seems supposed that laws nearly similar to those I have mentioned might be passed by the state by virtue of her powers over her internal police, and by virtue of her right to remove from her territory disorderly persons. . . . But it would be difficult, perhaps, to bring all the laws I have mentioned within the legitimate scope of the internal powers of police. . . . It has not heretofore been supposed necessary in order to justify these laws to refer them to such questionable powers of internal and local police."¹

Judge Thompson concurred in thinking state legislation necessary sometimes and proper when not contradictory of the acts of Congress or the federal constitution, but he enters upon no discussion of the relations of the subject to police power. Judge Wayne held the opposite view with a like silence except to deny all right of legislation over this subject to the states except such "as may be of a strictly police character." Justice Daniel followed on the other side with numerous citations from *City of New York vs. Miln* and free use of the term police power, and calls attention to the fact that dealing with the fugitive, merely as such, so long as he neither disturbs or threatens the domestic tranquility, is a matter of foreign relations and not of police :

"Under such circumstances he would not be a proper subject for the exertion of police power. If not challenged under a different power of the state, his escape would be inevitable."²

If arrested by the exercise of the police power he would, as far as he was subjected to that power of the state, "be taken out of that of his master," and thus the invocation of this police power, so far from securing the rights of the master, would "be made an engine to insure the deprivation of his property."

Justice McLean in his turn takes up the controversy in such

¹ *16 Peters*, 632-3.

² *Id.*, 658.

terms that in disposing of the relations of state and federal governments he loses sight of both slave and master, and does not in the end distinctly indicate whether he thinks the latter was or was not rightly convicted under the Pennsylvania law. His main argument as to whether the article of the constitution in question was designed merely to protect the rights of the slaveholders against states opposed to them, and, therefore, that to suppose any effective power toward the enforcement of that article to be left in the hands of those against whom it was to operate, would be utterly absurd and a fallacy from which the framers of the constitution must be presumed exempt, is fortunately no longer a matter of much practical moment.

He continues, however :

¹ "I come now to a most delicate and important inquiry in this case, and that is, Whether the claimant of a fugitive from labor may seize and remove him by force out of the state in which he may be found in defiance of its law? I refer not to the laws which are in conflict with the constitution or the act of 1793. Such acts I have already said are void. But I have reference to those laws which regulate the police of the state, maintain the peace of its citizens and preserve its territory and jurisdiction from acts of violence."

He adds later :

² "If the master may lawfully seize and remove a fugitive out of the state where he may be found without an exhibition of his claim, he may lawfully resist any force physical or legal which the state or any of its citizens may interpose. . . . The master exhibits no proof or right to the services of the slave, but seizes and is about to remove him by force. I speak only of the force exerted on the slave. The law of the state presumes him to be free and prohibits his removal; now which shall give way, the master or the state? It is a most important police regulation. . . . My opinion, therefore, does not rest so much upon the particular law of Pennsylvania as upon the inherent and sovereign power of a state to protect its jurisdiction and the peace of its citizens in any and every mode which its discretion shall dictate and which shall not conflict with a defined power of the federal government."

These men were apparently disputing about a name. They were all agreeing that there were some things a state might do in reference to runaway slaves. It was quite clear that Congress was authorized to take action in reference to the whole subject of fugitive

¹ 16 *Pet.*, 666.

² *Id.*, 669.

slaves and their rendition. Should this right of the state to act in reference to the fugitive slaves within its border, in virtue of its general authority to deal with subjects of government within its jurisdiction, be referred to a "police power" or should it be called something else and said to be concurrent with the power of Congress? Whenever they approached this "police power" they evidently found it something quite undefined and undefinable, and as evidently regarded it, when attempting to consider it by itself, as being identical with Madison's "residuary sovereignty" or Marshall's "immense mass of legislation" left to the state and not touched by the federal constitution. This had at length come to be popularly designated as the police power, and the court had adopted this name of its own suggesting.

It needs no reading between the lines to see that the real antagonism was something deeper. The term police power was almost as much a federalist and a northern expression as state sovereignty was anti-federalist and southern. This debate had the same cause as had the convention of 1787. The cause of the adoption of the federal constitution, as well as of the reaching of the "unanimous" conclusion in *Prigg's* case, was the too well-grounded apprehension of bloody collision between contending sections. Webster's spectre of States "discordant, dissevered, belligerent" was raised as soon as the first steps toward the confederation of the colonies were taken. It would not down at Webster's voice. Neither statesman nor judge could exorcise it.

It almost provokes a smile to read Sir Henry Maine's suggestion that it is wrong to charge the federal government with failure to furnish a peaceful solution of the slavery question, that its principles were never applied to the task, and that its framers wrongly shrunk from attempting what there is reason to suppose the machine they devised might have accomplished if set to the work. Is it not honor enough to have been alone among the nations in devising a central government solely out of the fear of disunion and without the welding influence of outer pressure? Where would have been the Union that in 1787, or even fifty years later, had dared to offer a solution of the slavery problem along the lines of the Declaration of Independence? The police power under that name comes into and takes its place in our jurisprudence as one of the judicial expedients not to lay but to pacify this disturbing spirit of slavery.

The fact that most of the discussions involving the police power

are in cases relating to the commerce clause, and that the case in which the phrase originated—*Brown vs. Maryland*—is such a one, does not prevent this being true. The slave power was not fond of the courts. The case of *Prigg vs. Pennsylvania* was, as Judge Story remarks, the first in which the provisions of the constitution as to fugitives from slavery was involved. The exclusion laws that Winthrop was attacking the next year in his *Report No. 80*, before referred to, seldom or never reached courts of last resort. This case of *Prigg vs. Pennsylvania*, itself, was doubtless brought by one who was anything but friendly to African slavery and is by Judge McLean declared to be an agreed case.

In the well-known¹ *Lemon* case in New York the writ of Habeas Corpus was served in 1852, the case reached its final hearing in the Court of Appeals only in 1860. It is not surprising that litigants should not be eager to take into the last asylums of justice cases involving the relative rights of slave and owner. The comments of² Judge Ruffin in reversing the judgment of conviction for assault on a slave by a temporary master who had hired her from her owner, show how loath the courts were to take up the subject. The fact that no appearance of attorney was made on behalf of the victorious defendant shows, perhaps, how little inclination there was to debate in courts of law this institution which rests upon pure force applied by one man for his own profit directly upon another.

The fact that in the United States courts the questions raised are concerning commerce or taxation does not prevent their discussion being always in the presence of this sometimes smouldering, sometimes blazing brand of dissension between the states, and both argument and decision were with an eye to the consequences in that direction. The effect of slavery in thus bringing into prominence the doctrine of the police power, growing out of the relations of the state and federal governments, seems a remarkable example of the truth of³ Stein's remark, that developments in constitutional and administrative law may be looked for precisely when some special interest is seeking to arrogate to itself the position of being the general public interest.

¹ *Lemon vs. People*, 20 N. Y., 562.

² *State vs. Mann*, 2d Dev., 263.

³ *Handbuch Verwaltungs Lehre*, S. 120.

CHAPTER II.

THE LICENSE CASES.

We have seen the police power so named by Chief Justice Marshall under the suggestion of Taney's argument in *Brown vs. Maryland*, as a result of the perception by the chief justice of the truth that in spite of all constitutional limitations from the side of the central government there must remain in the states an indefinite fund of legislative and governmental power to provide for the countless actual and conceivable emergencies of local government. We have seen this name, rather suggested than adopted by him, wait for ten years and until after his death to become the current one for this idea. In the same time it had become the term, not yet quite exclusively used, for the same idea in the court where it originated; that its currency was due to its getting involved in the slavery discussions, then just at an acute stage because of the growth of the southwest and the question of Texan annexation, seems to admit of no doubt.

The origination and character of this development of our law becomes still plainer with its next important appearance in the Supreme Court of the United States. This was in the¹ license cases in 1846. Once more, as in *Prigg vs. Pennsylvania*, we have a judicial debate. The judges all concurred in the disposition of all the cases. None, however, was willing to accept any of the others' reasons for doing so, except Justice Nelson, who contents himself with simply concurring with the chief justice.

The cases were simply that Massachusetts and Rhode Island had enacted statutes requiring a license from the town selectmen to authorize any retail sale of spirits in less quantities than a certain number of gallons, more, however, than the fifteen gallons which was the minimum quantity authorized by Congress to be imported at one time. New Hampshire had passed a similar act prescribing a similar condition for a sale in any quantity whatever. Each of

¹ 5 *How.*, 504.

the three states required a moderate payment for such license. A case of conviction for violation of these laws was brought up from each of the states under a finding in each case that the liquors were of foreign importation and that the sellers had no license to dispose of them. It was not claimed in any of the cases that the seller was also the importer, but the right to sell the imported liquor without license was claimed. It was also asserted that the laws were an infringement on the power of Congress to regulate commerce under the constitution.

The difficulty of fixing practical rights in a court which feels more strongly than anything else that its mission is to settle the relation of discordant states by determining their mutual relation to a paramount federal state is in this case exemplified. Truly, the foreign observer is not wholly unjustified in his amazement at the deliberate creation, as he thinks it was, of such a paradise for lawyers. The judges are as satisfied in these cases that the state statutes under consideration are good as they were in *Prigg vs. Pennsylvania* that the law was bad. They are all convinced that the laws they are considering here are each a valid exercise of the police power. The question profoundly discussed, and left as far as ever from settlement, is, whether they are also a regulation of foreign commerce, and whether the state has any concurrent authority with Congress over the latter subject. The increasing vogue of the term "police power" is noticeable. It is true that Chief Justice Taney does not yet quite fully adopt it, even in attempting to define, or rather describe, its meaning. After saying that no one controverts that the constitution, and laws made pursuant to it, are the supreme law of the land, and that consequently the acts of Congress must prevail in the domain of interstate and foreign commerce, he adds:

"But this power extends no further than such domain and beyond this the power of the state is supreme."

This, he says, is unquestioned, but the "trouble lies in the application of it"—not an uncommon trouble in deciding cases, but in this one the difficulty was not so much in making the application as in getting the nine judges to agree as to what it was they were applying. A discussion seldom settles questions. Courts settle them by deciding them. By discussing them they usually raise some new ones.

The discussion, however, was worth all the litigation which it has and may cost as the refining on this subject still goes on. The chief justice was certainly trying to follow¹ Machiavelli's maxim, and

"pursue the real truth of things and not some mere imaginary theory or conception of them."

He gives his own matured conclusion as to the case of *Brown vs. Maryland* and its doctrines. Eulogies and compliments to Chief Justice Marshall have certainly not been wanting. Taney's declaration here that he had concluded that he was wrong in his contention in that case and that Marshall was right is of them all perhaps the greatest and most touching. It has been said that the greatest victory of a disputant is not to silence but to convince his adversary.

But Taney has no difficulty in holding that in the cases of *Massachusetts* and *Rhode Island* the laws acting only on the retail trade are out of the sphere of interstate and foreign commerce. In the *New Hampshire* case, however, he admitted that, as the law required a license from the state before making any sale in any quantity whatever, it acted directly upon foreign commerce, and was void if the state had no power over such commerce. He, however, insists upon a subordinate power in a state to legislate upon that subject so long as it does not go contrary to the legislation of Congress nor get outside of the proper functions of local government.

That the term "police power" was not fully to the mind of the chief justice appears when he comes to discuss that subject and the distinction which he seeks to formulate between true police laws, over which he says Congress has no control, and this subordinate power of legislation which Congress can annul. Speaking of the case of *Gibbon vs. Ogden*, he says:

² "Moreover, the court on pages 205, 206 distinctly admits that a state may in the execution of its police and health laws make regulations of commerce, but which Congress may control. It is very clear that so far as these regulations are merely internal, and do not operate on foreign commerce or commerce among the states, they are altogether independent of the power of the general government and cannot be controlled by it."

That they are subject to control by Congress, therefore, stamps them as regulations of commerce in his eyes.

¹ *The Prince*, Chap. 15.

² 5 *How.*, 582.

Then he asks :

¹ "What are the police powers of a state? They are nothing more or less than the powers of government inherent in every sovereignty to the extent of its dominion, and whether a state passes a quarantine law or a law to punish offenses, or to establish courts of justice, or requiring certain instruments to be recorded, or to regulate commerce within its own limits, in every case it exercises the same power: that is to say, this power of sovereignty, the power to govern men and things within the limits of its own dominions. It is by virtue of this power that it legislates, and its authority to make regulations of commerce is as absolute as its power to pass health laws, excepting so far as it has been restricted by the constitution of the United States. When the validity of a state law is drawn in question in a judicial tribunal, the authority to pass it cannot be made to depend upon the motives that may be supposed to have influenced the legislature, nor can the court inquire whether it was intended to guard the citizens of a state from pestilence and disease or to make regulations of commerce for the interests and convenience of trade."

He cites a number of other matters in which the states legislate notwithstanding Congress has authority, as in matters relating to the militia, the bridging of navigable streams, as illustrated in ² *Houston vs. Moore* and ³ *Wilson vs. Blackbird Creek Marsh Company*. He holds the New Hampshire law and judgment valid, though the gin sold was brought from another state in the same barrel and Congress had undoubted power to regulate such traffic. Congress, however, had not done so, and therefore he thought the state, in the exercise of its general governmental powers, might deal with it as it pleased and either license or prohibit altogether such sales.

Judge McLean is, even more thoroughly than the chief justice, of the opinion that the laws and judgments in question are valid. He does not, however, like him, admit there is any neutral or common ground between the powers of the state and those of the federal government; each, to his mind, is absolutely supreme in its own sphere. So he thinks there can be no question that these are public laws, and therefore are not regulations of commerce.

⁴ "The states resting on their original basis of sovereignty, subject only to the exceptions stated, exercise their powers over everything connected

¹ 5 *How.*, 583.

² 5 *Wheat.*, 1.

³ 2 *Pet.*, 245.

⁴ 5 *How.*, 588.

with their social and internal condition; a state regulates its domestic commerce, contracts, the transmission of estate, real and personal, and acts upon all internal matters which relate to its moral and political welfare.

"Over these subjects the federal government has no power. They appertain to the state sovereignty as exclusively as powers exclusively delegated appertain to the general government." . . . "A license to sell an article, foreign or domestic, as a merchant, an innkeeper or a victualer, is a matter of police and of revenue within the power of a state." . . . "The acknowledged police power of a state extends often to the destruction of property. A nuisance may be abated, everything prejudicial to the health or morals of a city may be removed. Merchandise from a port where a contagious disease prevails, being liable to communicate the disease, may be excluded. In extreme cases it may be thrown into the sea. This comes into direct conflict with the regulation of commerce, and yet no one doubts the power. It is a power essential to self-preservation, and exists necessarily in every organized community. It is indeed the law of nature and possessed by man in his individual capacity."

Judge Taney's old gunpowder argument and illustration in *Brown vs. Maryland* come back again. After concluding that the case in hand is not one of sale by the importer, and therefore the precedent in *Brown vs. Maryland* did not apply, he answers the argument that a power such as he has described might be used to interfere with foreign and interstate commerce merely by saying that the fact that a power may be abused furnishes no inference of its non-existence. What power may not be abused in human hands?

Coming back again to the relations of the police power to that of Congress, he says that they must stand together:

"Neither of them can be so exercised as to materially affect the other. The sources and objects of these powers are exclusive, distinct and independent, and are essential to both governments. The one operates upon foreign commerce and the other upon the internal concerns of a state; the former ceases when the foreign product becomes commingled with the other property in the state. At this point the local law attaches and regulates it as it does other property. The state cannot, with a view to encourage its local manufactures, prohibit the use of foreign articles, or impose such a regulation as shall be in effect a prohibition. But it may tax such, as it taxes other and similar articles in the state, either specifically or in the form of a license to sell. A license may be required to sell foreign articles when those of a domestic

manufacture are sold without one, and if the foreign article be injurious to the health or morals of the community, the state may, in the exercise of that great and conservative police power which lies at the foundation of its prosperity, prohibit the sale of it. No one doubts this in regard to infected goods or licentious publications."

This seems to be carrying the doctrine of faculties even farther in the theory of government than it was ever carried in metaphysics. He adds as a corrective :

"Such a regulation must be made in good faith and have for its sole object the preservation of the health or morals of society. If a foreign spirit should be imported containing deleterious ingredients fatal to the health of those who use it, its sale may be prohibited. When in the appropriate exercise of these federal and state powers contingently and incidentally their lines of action run into each other, if the state power be necessary to the preservation of the moral health or safety of the community it must be maintained; but this exigency is not to be founded on any notions of commercial policy or sustained by a course of reasoning about that which is supposed to affect in some degree the public welfare."

With regard to the New Hampshire case, he holds the fact that all sales whatever without license are forbidden does not vitiate the law, because, as he thinks, the prohibition of tax upon imports by the states has reference only to imports from foreign countries.

Justice Catron comes to the support of the chief justice, and thinks the giving Congress power to legislate on a given subject would not of itself deprive the states of such power, but only of all right to act contrary to the constitution or to acts of Congress passed in accordance with it. The assumption is that the police power was not touched by the constitution, but left to the states as the constitution found it. This is admitted; and whenever a thing from character or condition is of a description to be regulated by that power in a state, then the regulation may be made by the state, and Congress cannot interfere; but this must always depend on facts subject to legal ascertainment, so that the injured may have redress, and the fact must find its support in this: Whether the prohibited article belongs to and is a subject to be regulated as a part of foreign commerce or commerce among the states. If from its nature it does not belong to commerce, or if its condition from putrescence or other cause is such when it is about to enter the state that it no longer belongs to com-

merce—or, in other words, is not a commercial article—then the state power may exclude its introduction. As an incident to this power, the state may use means to ascertain the fact, and here is the limit between the sovereign power of the state and federal power.

“What, then, is the assumption of the state court? Undoubtedly in effect that the state had power to declare what should be an article of lawful commerce in the state, and having declared that ardent spirits and wines were deleterious to morals and health, they ceased to be commercial commodities there, and that then the police power attached and consequently the powers of Congress could not interfere. The exclusive state power is made to rest not on the fact of the state or condition of the article, nor that it is property usually passing by sale from hand to hand, but on the declaration found in the state laws and asserted as a state policy that it shall be excluded from commerce. By this means the sovereign jurisdiction in the state is attempted to be created where it did not before exist.”

As Judge Catron adds, if the state can do this at pleasure, the power of Congress over commerce is gone. For that reason he thought the New Hampshire case could not be held to depend upon the police power, considered as a sovereign reserve power in the state and beyond all control of Congress. If the law is to be sustained, it must be held to have passed in the exercise of a subordinate power over commerce not forbidden to the states either impliedly by the constitution nor expressly by Congressional legislation. He then follows over the ground occupied by the chief justice, ¹ citing ² Hamilton in *The Federalist*.

Judge Daniel attacks the doctrine of *Brown vs. Maryland* as energetically as the chief justice upholds it. Judge Daniel declines to allow that the commercial power of Congress extends into the states and accompanies imported articles to their destinations within state boundaries. He declares,

³ “It is wholly otherwise under our system of confederated sovereigns.”

Justice Woodbury finds the cases satisfactorily disposed of in the opinions already given, and the most of the points raised he thought not material. He, however, like Justice Daniel, is unable to “put his conscience into commission” where the relations of the state are concerned.

¹ 5 How., 607.

² *Federalist*, No. 32.

³ 5 How., 615.

¹ "But looking to the relations which exist between the general government and the different state sovereignties, the question whether the laws in these cases are within the power of the states to pass without an encroachment on the authority of the general government is one of those conflicts of laws between the two governments, involving the true extent of the powers in each, which is very properly placed under our revision."

Agreeing with Chief Justice Taney and Justice Catron that the states have some powers of legislation over interstate commerce, he, nevertheless, is unable to find these license laws, even in the case of New Hampshire, prohibiting as it did absolutely sales without license, to be regulations of commerce. As he truly enough says, for more than half a century such license laws had been universally in use among the states, and no one had thought of regarding them as regulations of foreign commerce. The fact that they might have some effect on commerce could not be allowed to vitiate them if in fact they were properly directed at and had their principal effect upon something else and that something was within the state jurisdiction. He strikes the burning question really underlying all this when he discusses the principles as applicable to the exclusion of persons as well as things, and where he refers again to ² *Prigg vs. Pennsylvania*, the police power and runaway slaves.

Judge Grier also concurs in the judgments but agrees with Justice McLean as to the exclusive nature of the power of Congress over commerce, though he does not consider that point involved. He finds in the "complete, unqualified and exclusive" power of "internal police" developed by Justice Barbour in the case of *New York City vs. Miln* and in the maxim "*Salus populi, Suprema lex est*" a sufficient warrant for all three of the laws under consideration:

"The police power which is exclusively in the state is alone competent to the correction of these great evils, and all measures of restraint or prohibition necessary to effect the purpose are within the scope of that authority."

His conclusion is that the evils of pauperism and crime which have their origin in the traffic in ardent spirits are ample warrant for the placing them under the jurisdiction of this authority.

¹ 5 *How.*, 618.

² *Id.*, 628-9.

It is to be said, again, that these men were not debating about mere words. In the condition things then were, it mattered greatly whether various questions as to which the states were constantly legislating, and were certain to continue doing so, should be referred to a subordinate power subject to the revision of Congress, or to a police power which was "complete, unqualified and exclusive." In setting up a neutral ground, in holding that the states might continue to legislate in regard to a subject over which Congress was, by the terms of the Constitution, simply given power of regulation, Chief Justice Taney was not simply following separatist tendencies. He was, as he firmly believed, carrying out not only the intentions of the framers of the constitution,¹ who seem to have rejected a proposition in the convention to make this power in terms exclusive, but Marshall's judicial opinion as well.

It is true that Story, who based his dissent in the *City of New York vs. Miln* mainly on such exclusive power of Congress, says he has the consolation of knowing that in this position he had the concurrence of the late chief justice "upon the same grounds." But Judge Story weakens his own statement when he adds:

"Having heard the former argument his deliberate opinion was that the present case fell directly within the principles established in the case of *Gibbon vs. Ogden*, 9th *Wheaton*, 1, and *Brown vs. State of Maryland*, 12th *Wheaton*, 419."

It is to be noted that Judge Story had also taken the position that the New York law in the case of *City of New York vs. Miln* was at variance with Congressional legislation; and it is as to this position that in his dissenting opinion he cites both these cases most successfully. He hardly ventures to claim them as supporting an exclusive power in Congress.

It is clear that to claim the judge who in *Gibbon vs. Ogden*, while acknowledging the force of the argument for exclusive power in Congress over this subject pointedly declined to hold that such was the case, and who, in *Wilson vs. Blackbird Creek Marsh Company*, upheld a state law relating to bridging a navigable creek distinctly on the ground of a power remaining in the states, where no act of Congress intervened, to pass legislation affecting commerce

¹ 3d *Elliot's Debates*, 259.

² 2 *Pet.*, 251-2.

and navigation, as the author of the doctrine of such exclusive power on the part of Congress is, as Taney remarks,

"To make different parts of that opinion (*Gibbon vs. Ogden*) inconsistent with each other, an error which I am quite sure no one will ever impute to the eminent jurist by whom the opinion was delivered."

A lifetime of struggle with Marshall's logic had made Taney, at least, as able to get his meaning where his conclusions were accepted and sympathized with as was Story. Taney's derivation of consequences would be the closer of the two. That he regarded himself as strictly following Marshall's lead given in *Wilson vs. Blackbird Creek Marsh Company*, and the latter as in no degree inconsistent with, but on the contrary derivable from the doctrine of *Gibbon vs. Ogden* and *Brown vs. Maryland*, is clear. That Marshall should, after recognizing so clearly in his opinion in *Gibbon vs. Ogden* the exclusive right of the state to regulate its "internal police," have shown as he 'did that he considered the validity of much legislation which had been enacted by the states to depend upon its conformity to that of Congress, would seem to establish that at that time, as well as in 1829 when he decided the case of *Wilson vs. Blackbird Creek Marsh Company*, he recognized such a subordinate power in the states. With Taney, many will prefer to doubt the posthumous assertion of his adherence to the doctrine of exclusive power in Congress, rather than question his consistency.

This view will commend itself the more because Taney's doctrine was anything but separatist in practical tendency, and offered far greater opening, in fact, for the adjustment of differences between the states and the federal government than did the other. If the only authority on the part of states to legislate comes from a sovereign police power, "complete, unqualified and absolute," every enactment must be an assertion of such power and every inconsistency with federal legislation a clash of sovereigns. Then, too, if they were, as Story, McLean and Grier insisted, wholly separate fields, one belonging to the federal and the other to the state governments, the one fenced off to its owner by the constitutional grant of power to regulate commerce, and the other to the states by the constitutional reservation of all powers not conferred, neither Congress on the one hand nor the state legislatures or con-

¹ See p. 364.

stitutions on the other could enlarge or diminish their respective holdings. According to this a hard and fast line had been drawn over which neither could step, either for good or for evil.

The practical consequences of such a dispute in the court at a time when the differences between the sections were rapidly drawing to a crisis may be easily seen. That Taney's is the more practical and statesmanlike view seems clear; that it is supported by a closer following of historical development seems also true. It was not, however, sufficiently in accordance with the desire for sharp distinctions, the effort to hold the states and the national government clearly apart, which characterized both popular and professional sentiment at that time. The followers of the prevalent modern doctrine of the exclusive power of Congress over interstate and foreign commerce and of an entirely separate domain of police power may style themselves and ¹be styled the school of Marshall, but they can prove their position by their master only on the authority of Judge Story in a dissenting opinion written after the great chief justice was no more.

To appreciate the importance attached to every shred of power by the adherents of state and national authority respectively, the steadily growing slavery discussion and sectional bitterness must be kept in mind. The license cases are almost precisely contemporary with the Wilmot proviso, and the mission of Mr. Samuel Hoar to South Carolina as agent of the commonwealth of Massachusetts to look after the interests of colored seamen, her citizens, seized from their vessels in Charleston harbor. He left the city on the advice of the city and state authorities that he was not safe, and they could not and would not protect him.

¹ *Harvard Law Review*, Vol. xii, 359.

CHAPTER III.

THE POLICE POWER AND THE "COMMERCIAL POWER" OF CONGRESS COLLIDE IN THE "PASSENGER CASES."

Two years later in the ¹Passenger cases the police power and the commerce clause of the federal constitution appeared again in conflict in the United States Supreme Court. This was a signal for a renewal upon a still larger scale of the judicial debate over the relations of these two subjects. It gradually appeared that Chief Justice Taney and Justice McLean were the protagonists for the respective sides, if sides there were, where each judge repudiated more or less of the reasons for his position given by those who agreed with him. These cases, originating in 1841 and decided in 1848, were in some degree a triumph of the commerce clause in the constitution and of the doctrine of exclusive power in Congress over that subject and a recession from the assertion of a "complete, unqualified and absolute" police power in the states as declared in the *City of New York vs. Miln*. The discussion was even longer than in the License cases. The latter had occupied one hundred and twenty-nine pages in *5th Howard's Reports*. The Passenger cases filled two hundred and sixty-nine pages in *7th Howard*.

By a law of the state of New York the health commissioners of the city of that name were authorized to collect and receive, and in case of failure to pay to sue for and recover of the master of every ship arriving in its harbor \$1.50 for each cabin passenger and \$1.00 for each steerage passenger and mariner, and from each coasting vessel twenty-five cents for each person on board. Coasting vessels from New York, Connecticut and Rhode Island were only to pay once a month. Such money was to be denominated "Hospital Moneys," and the master was authorized to collect it from his passengers and crew. A failure for twenty-four hours after arrival on the part of the master to make such payment subjected him to a penalty of one hundred dollars. The health commissioners were to account annually to the state comptroller for all

¹ 7 *How.*, 283.

money so received, and if this was more than sufficient for the necessary maintenance of the marine hospital, including their own salaries and certain payments to the city, they were to pay the surplus to the treasurer of the Society for the Reformation of Juvenile Delinquents.

Suit was brought to recover this penalty and for the required payment against the master of the English ship *Henry Bliss* for landing two hundred and ninety passengers. Judgment was rendered against him in the trial court, and also on appeal in the state court of last resort, and the case then taken to the Supreme Court of the United States.

In 1837 it had been enacted by the legislature of the state of Massachusetts that each vessel coming into harbor at Boston be boarded by officers appointed by the city authorities and no lunatic, idiot, maimed, aged or infirm person, incompetent, in such boarding officers' opinion, to earn a livelihood, and no person who had been a pauper in any other country found on such vessel be permitted to land, unless bond in the sum of one thousand dollars should be given that such person would not become a public charge within ten years; and that no passenger be permitted to land from such vessel till two dollars for each passenger so landing had been paid to such boarding officer.

A Nova Scotia schooner called *The Union Jack* had landed nineteen passengers at Boston. Her master had paid the fee under protest and brought an action to recover it back, and from judgment against him in the state courts had taken the case by error to the United States Supreme Court.

The court, in an opinion by Justice McLean, with whom concurred Justices Wayne, Catron, McKinley and Grier, decided the laws both bad as being infringements upon the power of Congress to regulate foreign and interstate commerce.

He considers the question under two general heads: first, Is the power of Congress to regulate commerce exclusive? and, second, Is the statute of the state of New York, and subsequently the Massachusetts statute, a regulation of commerce? In discussing the first, he has discovered that the doctrine that the legislative power of the state can be in any case subordinate

¹"degrades the states by making their legislation to the extent stated

¹ 7 *Howard*, 399.

subject to the will of Congress. . . . State powers are at all times and under all circumstances exercised independently of the general government and are never declared void or inoperative except when they transcend state jurisdiction, and, on the same principle, the federal authority is void when exercised beyond its constitutional limits."

Of course, by dwelling upon this he only adds force to Taney's remark in the License cases that it is inconsistent to make the fields of state and federal legislation mutually exclusive and still make the validity of state legislation depend in any degree upon its conformity to that of Congress; and this inconsistency must be attributed to ¹Chief Justice Marshall if it is claimed that he held the power of Congress to be exclusive. He had in *Gibbons vs. Ogden* and *Wilson vs. Blackbird Creek Marsh Co.* held the state legislation considered in those two cases bad and good respectively, according as it agreed or not with that of Congress. If the position of Story, and after him McLean, is sound, it is not a question of consistency with Congressional enactments or otherwise, but is simply one of power or absence of it on the part of the state.

The argument of Justice McLean, otherwise, goes over the familiar ground and cases, but he spends more effort in trying to show the essential repugnancy of two concurrent powers over the same subject in the same state, and hence he thinks that commerce and police powers must be held to be two different and distinct things. He says:

"No one has yet drawn the line clearly because, perhaps, no one can draw it between the commercial power of the Union and the municipal power of a state. Numerous cases have arisen involving these powers which have been decided, but a rule has necessarily been observed as applicable to each case and so must every case be adjudged."

He finds that the laws in question impose a tax on commerce which Congress by non-action had decided should be free. Out of a ²remark in the opinion in *City of New York vs. Miln*, that persons were not subjects of commerce and so putting restrictions on bringing them in was not taxing imports, it had been sought to develop a doctrine that the transportation of passengers was not commerce, and so Congress had no authority over it. Over this question the judicial debate went on at a length there is no occasion now to

¹ See page 364.

² 11 Pet., 136.

follow. Toward the end of his opinion Justice McLean touches again upon the police power, this time in its relation to taxation :

¹ "The police power of the state cannot draw within its jurisdiction objects which lie beyond it. It meets the commercial power of the Union in dealing with subjects under the protection of that power, yet it can only be exerted under peculiar emergencies and to a limited extent. In guarding the safety, health and morals of its citizens a state is restricted to appropriate and constitutional means. If extraordinary expenses be incurred an equitable claim to an indemnity can give no power to a state to tax objects not subject to its jurisdiction."

Justice Wayne, who took no part in the discussion of the License cases but concurred in the decision, now declares himself for the doctrine of exclusive power in Congress over commerce, and says that opinions to the contrary are "individual opinions," and without authority "to overrule the contrary conclusion as it is given by this court in *Gibbon vs. Ogden*." He does not think it necessary to reaffirm that doctrine, however, in these cases.

He announces nine conclusions of the court in these Passenger cases, with most of which the police power has little direct concern. The second of them is, that the states cannot tax commerce of the United States to help defray expense of executing police laws, and that commerce includes intercourse of persons as well as importations of merchandise. He also finds the laws in question are inconsistent with certain treaties and Congressional enactments, though why he should do so, after concluding that their entire subject is outside of the domain of state legislation, is not quite clear. His ninth conclusion is that the states may, in the exercise of their police powers, establish quarantine and health laws and impose penalties for their violation ; that such laws though affecting commerce do not regulate it, and in the exercise of such police power without infringing on that of Congress the state may exact from owners and passengers of vessels the costs of their detention and purification. The laws under consideration are held to be not of this character but to establish a tax in each case on foreign commerce and, therefore, void.

Coming to discuss the claim that they are merely police laws and the charges merely to cover the expense of executing them, he says :

"A proper understanding of the police power of a nation will probably

¹ 7 *How.*, 408.

remove the objection from the minds of those who made it. What is the supreme police power of the state? It is one of the means used by sovereignty to accomplish that great object, the good of the state. It is either national or municipal, in the confined application of that word to corporations and cities. It was used in the argument invariably in its national sense. In that sense it comprehends the restraint which nations may put upon the liberty of entry and passage of persons into different countries for the purposes of visitation or commerce."

"Police powers, then, and sovereign powers are the same. The former being considered as so many particular rights under that name or word collectively placed in the hands of the sovereign." "How much of it have the states retained? I answer unhesitatingly, all necessary to their internal government. Generally, all not delegated by them in the articles of confederation to the United States of America; all not yielded by them under the constitution of the United States. Among them, qualified rights to protect their inhabitants by quarantine from the fields. Imperfect and qualified, because the commercial power which Congress has is necessarily connected with quarantine, and commerce may by adoption, presently and for the future, provide for the observance of such state laws making such alterations as the interest and conveniences of commerce and navigation may require. Such has been the interpretation of the right of states to quarantine and that of Congress over it from the beginning of the federal government. Under it the states and the United States, both having measurably concurrent rights of legislation in the matter, have reposed quietly and without any harm to either until the acts now in question caused this controversy."¹

This is what resulted to Judge Wayne from accepting "just as it is expressed" Story's and McLean's laboriously constructed doctrine of totally distinct domains for state and federal power. He goes on to remark that the whole trouble has arisen out of the claim of a right to remove and keep out of the state dangerous persons. He finds the power to regulate commerce, also, one of those particular rights collectively placed in the hands of the sovereign for the good of the state.

The bearing of these cases upon the burning controversies of the time comes out in the following :

¹ "The fear expressed that if the states have not the discretion to determine who may come and live in them, the United States may introduce into the southern states emancipated negroes from the West Indies and

⁷ *How.*, 424.

² *Id.*, 411.

³ *Id.*, 428.

elsewhere, has no foundation. It is not an allowable inference from the denial of that position or from the assertion of the reverse of it."

The long account of how the opinion in the case of *City of New York vs. Miln* came to be given, and especially to contain the remark that persons are not subjects of commerce, has no relation to the police power except as showing how almost by accident an opinion so important in the history of that power and in popularizing the use of the term came to be adopted and published as the opinion of the court.

Justice Catron does not discuss the question of the concurrent but subordinate power in the states to regulate commerce which he upheld in the License cases. He finds that these laws now in question provided a tax on foreign commerce, which is contrary to the national policy and legislation, and, therefore, that they are void.

¹ "Were this court once to hold that aliens belonging to foreign commerce and passengers coming from other states could have a poll tax levied on them on entering any port of the state, on the assumption that the tax could be applied to maintain state police powers, and by this means the state treasury could be filled, the time is not distant when states holding the great inlets of commerce might raise all necessary revenues from foreign intercourse and from intercourse among the states and thereby exempt their own inhabitants from taxation altogether."

He finds the passengers in these cases were not subjects of any police power or sanitary regulations, and thus frankly rests his conclusions on general expediencies, and is noticeably cautious of approaching the abstract question as to the exclusiveness or otherwise of the federal power over commerce.

² Justice McKinley deals only with clause 1 of article 9 of the federal constitution as to the exclusion of persons, and thinks it does not refer simply to the slave trade, but puts the whole question of immigrants and their regulation into the hands of Congress.

Justice Grier follows substantially the ideas of Justice Catron, that twelve states in the Union had no seaport, that the constitution was adopted principally to avoid commercial disagreements and troubles between the states; and he leaves practically out of view both the claim of police jurisdiction for the state and that of exclusive power on the part of Congress.

¹ 7 *How.*, 448.

² *Id.*, 452.

Of the five judges of the majority, McLean and Wayne assert the supremacy and exclusiveness of the power of Congress over interstate and foreign commerce, and the same supremacy and exclusiveness in the police power of the states, though with some faltering in the latter on the part of Justice Wayne. The other three decline to discuss the exclusiveness of Congressional power, but all five find in the laws a tax on passengers which no state has authority to exact, and for which the police power in any view furnishes no justification.

Justice McLean, especially, builds two sovereignties and assigns to one under the name of the commercial power the absolute disposition of all foreign and interstate commerce without so much as even a suggestion from the other, and to that other under the name of police power a like absolute control of domestic commerce and general local government. He admits that no clear dividing line exists between the two, that on each side the one is constantly passing into each other, but trusts to the resources of his court to reconcile them when they clash. It is not much wonder that Chief Justice Taney, and Justices Daniel, Nelson and Woodbury with him, were disturbed by the prospect of such a task, at a time when the churches of the country were splitting it into northern and southern, and the dispute between the two sections was just reaching the crisis which was allayed by the compromise of 1850.

The chief justice declares that the question involved in these cases is, whether under the constitution the federal government has the right to compel the states to receive and permit to remain in association with their citizens every class of persons whom it may be the policy or pleasure of the United States to admit from abroad.

¹ "If the people of the several states of this Union reserved to themselves the power of expelling from their borders any person or class of persons whom they might deem dangerous to their peace or likely to produce physical or moral evil among their citizens, then any treaty or law of Congress invading this right and authorizing the introduction of any person or description of persons against the consent of the state, would be an usurpation of power which this court could neither recognize nor enforce. I had supposed this question not now open to dispute. It was distinctly decided in ² *Holmes vs. Jenison*, ³ *Groves vs. Slaughter* and ⁴ *Prigg vs. Commonwealth*. If these cases are to stand the right of the state is undoubted."

¹ 7 *How.*, 466. ² 14 *Pet.*, 540. ³ 15 *Pet.*, 449. ⁴ 16 *Pet.*, 539.

He, therefore, finds in a right to exclude these passengers a more than sufficient authority to prescribe the conditions on which they may come in. He cites his own opinion in the License cases as to a right in the states to legislate locally on commerce, where Congress has not done so, and cites the thirty-second paper of *The Federalist* on this point. He declines to see, in any law or treaty cited, anything contradictory to the state legislation in question, and sees in the ninth section of article 1 of the federal constitution no reference to anything but the slave trade. He ¹ admits the transporting of passengers is a part of commerce, but declines to reckon passengers themselves as imports. He does not see that in resigning the regulation of interstate and foreign commerce to Congress the states intended to give up any power of taxation, and referring to Mayor of the City of New York *vs.* Miln, says that the state law in that case was sustained upon what was called the police power of the state.

He closes with an assertion of the rights of the federal government as strong as that of Judge Miller, given in *Crandall vs. Nevada*, in 1867 :

"For all of the great purposes for which the federal government was formed, we are one people with one common country. We are all citizens of the United States, and, as members of the same community, must have the right to pass and repass through every part of it without interruption as freely as in our own states ; and a tax imposed by a state for entering its territories or harbors is inconsistent with the rights which belong to the citizens of other states as members of the Union, and with the object which that Union was instituted to attain. Such a power in the states could produce nothing but discord and mutual irritation, and very clearly they do not possess it. But upon the question that the record brings up the judgment in the New York case, as well as that in Massachusetts, ought in my opinion to be affirmed."

The opinion of Justice Woodbury is important on two accounts, as setting forth somewhat carefully a view of the police power as such, and as suggesting that doctrine derived from *The Federalist*, that the power of Congress is exclusive in cases which admit of only a uniform rule applicable to the entire country, which became that of the court by the decision in the case of ² *Cooley vs. Board of Port Wardens*, decided three years later, and which by the case

¹ 7 How., 473.

² 12 How., 299.

of ¹ *Leisy vs. Hardin*, decided in 1890, was converted into the form that the power of Congress is exclusive except in cases that do not admit of a uniform rule applicable to the entire country. Justice Woodbury defends the laws as police measures :

² "A police measure, in common parlance, often relates to something connected with the public morals, and in that limited view would still embrace the subject of pauperism as this court has held in *16 Peters*, 625. But in law the word police is much broader and includes all legislation for the internal policy of the state (*4 Black*, chap. xiii). The police of the ocean belongs to Congress and the admiralty powers of the general government, but not the police of the land or of harbors."

And he proceeds to argue it is only in form a tax, and is merely to obtain the expenses of policing the vessels and persons who are required to pay it.

The bearing of these cases upon the slave controversy fully appeared in this opinion on page 526 :

"It having been then, both in Europe and America, a matter of municipal regulation whether aliens shall or shall not reside in any particular state or even across its borders, it follows that if a sovereign state pleases it may, as a matter of clear right, exclude them entirely, or only when paupers or convicts, or only when slaves, or what is still more common in America, in free states as well as slave states, exclude colored immigrants though free. As further proof and illustration that this power exists in the states and has never been parted with, it was early exercised in Virginia as to other than paupers, and it is now exercised in one form or another in more than half of the states of the Union."

He concludes that the matter under consideration

³ "is not one of those incidents to our foreign commerce which, like duties on imports or taxes or tonnage, require a universal, uniform rule to be applied by the general government. A uniform rule by Congress not being needed on this particular point nor being just is a strong proof that it was not intended Congress should exercise power over it."

"The silence of Congress, which some seem to regard as more formidable than its action, is whether in full or in part to be respected and obeyed only where its power is exclusive and the states are deprived of all authority over the matter." . . . "In other cases, when the power of Congress is not excluded and that of the states is concurrent, the silence of Congress to legislate on any mere local or subordinate matter

¹ 135 U. S., 100.

² 7 How., 523.

³ Page 546.

within the limits of the state, though connected in some respects with foreign commerce, is rather an invitation for the states to legislate upon it than a circumstance nullifying, destroying every useful and ameliorating provision made by them. Such, in my view, is the true rule in respect to commercial grant of power over matters not yet regulated by Congress and which are obviously local. In the case of *Wilson vs. Blackbird Creek Marsh Company*, Chief Justice Marshall not only treated this as a true rule generally, but held it applicable to the grant to Congress of the power to regulate commerce."

The police power was clearly getting at least an extensive discussion in the Supreme Court. Chief Justice Taney still refers to "what is called the police power" in *New York vs. Miln*, but the term had by this time almost entirely superseded the old circumlocutions. Whenever an attempt is made to analyze and define it, as here by McLean, Wayne and Woodbury, and in the License cases by Taney, it is still, however, invariably found to turn back into that¹ "indefinite supremacy" which Madison found involved in all ideas of government.

Possibly the judges would have done better to have recognized more fully what he says elsewhere :

² "That among a people consolidated into one nation, this supremacy is completely vested in one legislature. Among communities united for particular purposes it is vested partly in the general and partly in the municipal legislature."

It will be observed that Madison is very far from asserting any difference in nature between the powers exercised by the two legislatures. They are in his view simply placed in different bodies by an arbitrary division. He finds that when thus divided the national and the local governments each share in this indefinite supremacy. The writers of *The Federalist* were concerned only in showing that the power of the general government must be indefinite and succeeded in doing so. As Hamilton stated it, "of the same nature" (with the laws of mathematics)

"are those other maxims in ethics and politics that there cannot be an effect without a cause ; that the means ought to be proportioned to the end ; that every power ought to be commensurate with its object ; that there ought to be no limitation of a power destined to effect a purpose which is itself incapable of limitation."

¹ *Federalist*, No. 39, p. 238, Lodge ed.

² *Id.*, No. 31, p. 180.

³ *Id.*, No. 31, p. 180.

A little farther on he says :

¹ "A government ought to contain in itself every power requisite to the full accomplishment of the objects committed to its care, and to the complete execution of the trusts for which it is responsible, free from every other control but a regard to the public good and to the sense of the people. As the duties of superintending the national defense and of securing the public peace against foreign or domestic violence involve a provision for casualties and dangers to which no possible limits can be assigned, the power of making that provision ought to know no other bounds than the exigencies of the nation and the resources of the community."

No doubt. But the demands upon the means and powers of the states in executing their function of providing for the domestic peace, justice and prosperity are equally indefinite and unlimited and require a like domestic power with "no other bounds than the exigencies of the 'states' and the resources of the community." Hamilton recognized this and sought to supply such indefinite powers from what he considered their true source,² the national government. That was the meaning of his scheme for local federal magistrates and United States justices of the peace.

That method did not commend itself to his fellow-citizens. They preferred to believe that they had, as was supposed by the makers of it, and as he had argued at the time of its creation, a system of divided sovereignty, and that these indefinite powers were lodged in both state and federal governments. The fashion came in with the case of Mayor of New York *vs.* Miln of styling this "indefinite supremacy" supposed to be lodged in the state the "police power." This was especially true of those who wished to minimize the influence of the states while asserting it.

The federal government was generally supposed to be one of enumerated powers, but Marshall, following Hamilton, had bestowed upon it—or, if the expression is preferred, had found in it—with the consent and approval of practically all his fellow-citizens, the additional power of self-preservation. This turns out to be nothing less than Madison's "indefinite supremacy." To maintain itself it must override whatever opposed it, and the states and their authorities if they should do so.

The practical discovery of this was naturally in applying the

¹ *Federalist*, No. 31, p. 182.

² Hamilton's works, Vol. viii, 518; Sumner's *Hamilton*, p. 230.

commerce clause of the federal constitution. The attempt to regulate foreign commerce, and the following for that purpose of imported articles within the boundaries of the states, inevitably brought the federal government in contact with state government endeavoring to do the same thing in the exercise of their local power.

It seems clear enough that the "commerce power," as Justice Woodbury calls it, the "commercial power," as Justice McLean termed it and as it has often since been denominated in the Supreme Court, and this police power of the state are not distinguishable in their nature. It can hardly be a mysterious something in the federal government, called commercial power, which controls and regulates the sale and handling of an article that has come from Paris into an interior town of one of the states, and another equally mysterious something of a different and wholly distinguishable nature, called the police power of a state, which controls a like sale of a wholly similar article by the same individuals in the same place and to the same person when it happens to come from the next town, instead of from France. Is the difficulty of adjusting the exercise by two sovereignties of their powers in such juxtaposition likely to be increased or diminished by earnestly declaring that they are totally distinct in their nature and, if properly conceived, cannot come in conflict? The famous conundrum as to the number of legs the sheep has if you call the tail a leg may be inverted. It is just as difficult to make a tail out of a leg by calling it such as it is to reverse the process. There must, too, in the nature of things, be constant openings for conflict in the fact that the power of the general government is over the imported property as an article of commerce and the sovereignty of the state, with its duty to guard the public safety, health, morals and welfare, extends, in any possible view, to all the other things and persons that surround and deal with such imported articles. Commerce and trade arise only by reason of local things and persons assuming direct relations with such imported articles. The state in acting upon such local things and persons while they are in such commercial relations with imports must affect, and may prevent, such commerce. How, then, can such commerce be exclusively regulated by Congress? What is there which can be governed and controlled by two forces at once both independent and exclusive of each other.

So the state comes to have the right and, when an emergency arises, to be under the duty to take action that affects foreign and interstate commerce; and, on the other hand, regulations of foreign and interstate commerce which pass inside of state boundaries must always affect persons and things that are supposed to be under state control, and alter the rights of the states with respect to them.

In both the License cases and in the Passenger cases, only Chief Justice Taney and Justice Woodbury seem to have recognized that the two powers must, to a certain extent, interlace and cover the same field; that the only way to harmonize them is to find them, to a certain degree, concurrent, and leave that of Congress paramount. The other judges seem still to imagine that they may be wholly separated. Such a view seems yet to prevail.

The passage in Cooley's *Constitutional Limitations* discussing the possibility of conflict with national authority growing out of the plenary police power of the state seems to countenance such a view:

¹ "Any accurate statement of the theory upon which the police power rests will render it apparent that a proper exercise of it by the state cannot come in conflict with the provisions of the constitution of the United States. If the power extend only to a just regulation of rights with a view to the due protection and enjoyment of all, and does not deprive any of that which is justly and properly his own, it is obvious that its possession by the state and its exercise for the regulation of the property and actions of its citizens cannot well constitute an invasion of national jurisdiction, or afford a basis for an appeal to the protection of the national authorities."

This passage has remained practically unchanged in all the editions of Judge Cooley's work since its first publication in 1868.

If this means, as on its face it seems to, that the police power of the states, rightly conceived, is the same under the federal constitution that it would be without that constitution, and so no conflict is possible except under a misconception of the one or the other, then lawyers and judges, not excepting Judge Cooley, who have appealed so often to that instrument to avoid attempts to exercise that power, against which they could cite nothing but the constitution, have been strangely blind to the true theory.

If we are to ² "follow the real truth of things rather than an

¹ Cooley's *Con. Lim.*, 5th ed., p. 708; 1st ed., 1868, p. 574.

² Machiavelli, *Le Prince*, Fr. Tr., chap. xv.

imaginary view of them," it would seem to be safer, with Chief Justice Taney, to make a qualified admission of "what is called the police power," and to decline to accept *in toto* the doctrine of an exclusive commercial power in Congress and of its essentially different nature from that of police power. If Judge Cooley only meant—as he probably would have claimed if pressed—that an accurate theory of the police power must include the fact that when it meets the paramount constitution of the United States it must yield, his expression does not seem a fortunate one. Conflict is certainly possible in all such meetings, and, in a true sense of the term, such a meeting of rival claimants is conflict.

It seems strange that the ¹ "high-toned federalists of the bench," McLean and Wayne, should reproach the chief justice with a doctrine that

¹ "degrades the states by making their legislation to the extent stated subject to the will of congress."

The essence of the federalist position, as Marshall clearly recognized, is the concurrent and subordinate position of the states and the paramount power of the federal government.

In 1851 the famous case of ² *Cooley vs. Port Wardens of Philadelphia* was decided, and the exaction of the pilot dues in the harbor of that city under laws of Pennsylvania was upheld as a state regulation of commerce. The police power was not invoked to sustain it. Justices Wayne and McLean were compelled to dissent from such a recognition of "commercial power" in a state.

The next year, 1852, the police power appeared once more in the federal court in ³ *Moore vs. The People of the State of Illinois*. This time a statute of the state of Illinois provided, under penalty of fine and imprisonment, that no one should harbor or secrete any person of color being a slave or servant, or in any way hinder an owner or master in retaking such. This law, unlike the Pennsylvania statute under consideration in *Prigg vs. Pennsylvania*, which made it a crime to forcibly seize a slave in the state of Pennsylvania without legal process, was held valid and

"not to act on master nor slave, neither on constitutional right nor remedy, but solely on citizens of Illinois."

¹ 7 How., 399; Carson, *Hist. of Sup. Court*, quoting Story, p. 337.

² 12 How., 299.

³ 14 How., 17.

Justice Wayne, in giving the opinion of the court, continues:

"It is but the exercise of the power which every state is admitted to possess of defining offenses and punishing offenders. The power to make municipal regulations for the restraint and punishment of crime, for the preservation of the health and morals of her citizens and the public peace, has never been surrendered by the states, nor restrained by the constitution of the United States."

"In the exercise of this power, which has been denominated the police power, a state has a right to make it a penal offense to introduce paupers, criminals or fugitive slaves within their borders, and punish those who thwart this policy by harboring, concealing or secreting such persons."

That it may help the owner is no objection to such action by the state:

"If a state in the exercise of its legitimate powers should thus indirectly benefit the master of a fugitive, no one has a right to complain that it has thus far, at least, fulfilled a duty assumed or imposed by its compact as a member of the Union."

"That the defendant is thus subject to two punishments, one by the state and another by the nation, is not a good objection, as he is subject to two sovereignties and his act is a violation of the laws of each and therefore constitutes two offenses."

Here we have the same act of the same person punished by both state and nation with a view to vindicate the same right of a master, and are asked to religiously refrain from finding the powers exercised by the two governments similar or concurrent.

Judge McLean's dissenting opinion is to the effect that this was not an exercise of the police power, for the reason that the control of fugitive slaves is ascribed by the national constitution to Congress and so removed from the domain of police power. He seems to have found, though he does not name, a fugitive slave power.

How the different members of the federal Supreme Court, or how Judge Cooley himself, would frame such a "true theory" of the nature of police power as would put this case of *Moore vs. Illinois* within it and *Prigg vs. Pennsylvania* without it, and all with no assistance from express provisions of the constitution, is hard to conceive. A state law that forbids harboring a slave is a due exercise of the police power. A state law that forbids a master from taking his slave and removing him by force out of the commonwealth without the exhibition of some legal process is not.

And the distinction is to be sought in the nature of a power exercised in each case. Is this following "the real nature of things rather than an imaginary view of them"?

In following thus carefully, and perhaps tediously, these earlier cases in the court where the police power was first named, and the conception of it developed and discussed under that appellation, it was hoped that an exact apprehension might be reached as to just what was that conception. It is evidently, so far at least, Madison's "residuary sovereignty of the states." Evidently, too, it is not usually thought of by the court as including familiar forms of the exercise of such sovereignty, to which definite names had already attached, such as "eminent domain," "taxation," "administration of justice," etc. When analyzed by the judges, however, it is recognized to embrace them, or rather as not to be separable from them.

At the same time we find the phrase constantly used, even by judges of the Supreme Court of the United States, as if it denoted something absolutely definite and distinct, and always, if not easily, distinguishable from any other function of government. As we have seen, it is talked of by them as if furnishing one of the criteria between state and federal powers. It is clear, however, that it was rightly characterized by Marshall himself as a "mass of legislation," and that it is obtained as a residuum after taking away from the general powers of government, first, such powers as the convention of 1787 found it necessary to bestow upon the general government, and, second, such other powers ordinarily regarded as sovereign as had already acquired distinct recognition.

That such residuum is, and must remain, an indefinite "mass" seems clear if it is a remainder after carving away a part of sovereignty, and the latter is

¹ "an indefinite supremacy over all persons and things, so far as they are objects of lawful government,"

as Madison thought and Hamilton proved.

Political sovereignty must be made equal to the exigencies of the state. These are indefinite, unknown and unpredictable. To make anything adjustable to an unknown variant is certainly to make it indefinite. This is not to say that it has no limits. It may easily have, in some direction, a barrier which it cannot overleap.

¹ *Federalist*, No. 39, Lodge ed., p. 238.

It is to say, however, that in some directions its limits cannot be fixed. So much the authors of *The Federalist* seem to have been safe in saying.¹

¹ NOTE TO CHAPTER III.—Since writing this chapter the author's attention has been directed to *Theories Modernes sur les Origines de la Famille, de la Société et de l'Etat*, by Prof. Pasada, being No. 4 of the "Bibliothèque Sociologique Internationale," and his finding this indefinite power precisely the distinguishing mark of a "state" as compared with other associations of mankind. See work cited, pp. 100-105 and Appendix.

CHAPTER IV.

THE POLICE POWER IN THE STATE COURTS.

The police power has so far in these pages been followed through twenty-five years in the court where the name originated. The conservativeness of legal phraseology is illustrated by the manner in which it passed into other fora. In them, even more than in the court where it originated, it was to help to realize Hamilton's anticipations as to the ¹ voluminousness of law under our institutions. Few prophecies, indeed, have been so abundantly fulfilled as this one of Hamilton's.

The eleven state constitutions adopted during the revolution, commencing with that of New Hampshire in 1776, and including that of Massachusetts, drawn mainly by John Adams and adopted in 1780, all contained bills of rights and without an exception sought to provide a judiciary as a coördinate branch of the government. Whether or not *Holmes vs. Walton*, decided in New Jersey in 1780, was the first judicial determination that judges might treat as void legislation not in harmony with the state constitution, at all events before the formation of the federal government it was currently admitted that such was the case. The existence of such a practice and its necessity in all limited constitutions are appealed to by ² Hamilton in urging the adoption of the federal constitution. It was common enough already to excite no surprise when such a power was claimed for the federal judiciary.

That there were limitations on the power of a state legislature from the side of the individual citizens was as true as that limits were sought to be set up on the side of the federal government. The right, however, of the state courts to say when the legislature stepped outside its limitation was not established without a struggle. None of the state constitutions in express terms gave any such power. Indeed, the language used in ³ some of them

¹ *Federalist*, No. 78, Lodge ed., p. 490.

² *Id.*, No. 78, p. 485.

³ *Const. Mass.*, Part 1, Art. 20. *Const. N. H.*, Part 1, Art. 29.

seems almost a prohibition on its exercise by the court. Nearly all of them provided that legislative, executive and judicial powers be kept distinct, and so late as 1825 the powerful dissenting ¹opinion of Justice Gibson in *Eakin vs. Raub* expresses his "deliberate conviction" that the intention of the state constitutions was not to give the judges any such functions and that it was intended that the people themselves in their frequent elections should be the guardians of their own constitutions against both executive and legislature. To be sure, in so doing he sanctions Paley's conception that the judiciary is a branch of the executive as against Montesquieu's idea of the necessity of its complete independence.

The doctrine of Judge Gibson probably rests on the basis of facts. It is difficult to read the constitutions of those early years without concluding that such a power in courts was not contemplated by their framers, and that it grew up as an after-thought and a necessity. The people were accustomed to having all laws interpreted by the courts. They saw no reason why the supreme law should not be so interpreted, when interpretation was needed. Without much regard to their own declarations that the complete separation of legislative, executive and judiciary were essential to free government, they had ratified the action of their courts in assuming such jurisdiction even before the federal constitution was formed.

When that constitution was made to embrace the provision that it and all laws and treaties made in pursuance of it should be the supreme law of the land, and that the judicial power of its courts should extend to all cases arising under it, they understood that they were submitting to the Federal Supreme Court the validity and conformity to the federal constitution of legislation of the states. Judge Gibson admits this, though his argument would seem to prevent such a holding as to an act of Congress. The famous case of ²*Marbury vs. Madison* had held, however, that Congress could not pass an unconstitutional act and make it binding on the Supreme Court. Chief Justice Marshall's reasoning is equally applicable to the case of a state Supreme Court dealing with an act of its legislature. It is a perfect example of his mingling of dialectics and common sense and has never been shaken. Even Judge Gibson, twenty years after *Eakin vs. Raub*, declared he had changed his mind "from the necessity of the case."

¹ 12 S. & R., 330.

² 1 Cranch, 137 (1803).

That the federal government, looked upon with such different feelings and intentions as it was by Federalists and by their opponents, and expressly authorized as it was to find the state laws unconstitutional, would develop a counter theory of power in the state was a foregone conclusion, especially with the construction and application of the federal constitution in the hands of Judge Marshall. The growth of a line of decisions as to state legislative powers was to be expected first here.

It was also certain that the development of the limitations upon state power from the other side, by insistence on the principles of the bills of rights, would take place. The latter might be expected to come more slowly, as it did. Toward the middle of the century it began to be suggested that the development of these limitations from both sides was going to leave to the states only an "empty shell of legislative power." We have seen how in deciding the Dartmouth College case Chief Justice Marshall kept in mind the avoidance of

"unprofitable and vexatious interference with the internal concerns of a state" and "those civil institutions which are established for purposes of internal government, and which to subserve those purposes ought to vary with varying circumstances."

His successor in dealing with the case of *Charles River Bridge vs. Warren Bridge*, in holding that no exclusive franchise would be conferred except by express terms, expressed the determination not to take from the States

"any portion of that power over their own internal police and improvement which is so necessary to their well-being and prosperity."

In the courts generally there was little disposition to cut down too closely the powers of government.

It is not strange that the application of the bills of rights as a test of the validity of state legislation was somewhat slow. There was against it all the immense weight of legal precedent. In considering the effect which any particular institution or constitutional provision has produced in this country, it is necessary to take into consideration the solid background of English common law, or what was accepted for it and revered accordingly.

At the beginning of this consideration of the police power what was deemed an oversight on the part of Sir Henry Maine in not

¹ *Supra*, p. 627.

recognizing the paramount importance of the states in the American political situation of 1787 was indicated. His entire accuracy in describing the colonists as Englishmen isolated by the Atlantic and penetrated through and through with English institutions and English habits of thought, especially in matters of government and authority, must be conceded. Indeed, the common law of England plus the state organizations may be fairly stated to have been the political stock in trade of North America in 1787.

It was natural that they should idealize that common law. Blackstone had recently set forth its main outlines in those *Commentaries* which still remain the only authoritative legal treatise in our language which is also literature. His work was more popular and more read in America than in England, and is said to have found actually more purchasers before 1800 on this side of the Atlantic than on the other.

The terms in which the common law is referred to by judges and publicists of those days indicate that they regarded it as furnishing a practically complete system of civil and criminal justice. The author of the sixty-second paper of *The Federalist*, 'whether Madison or Hamilton, seems to have dreaded innovations rather than hoped for improvements by legislation.

It needs no pointing out that this system had grown up with no conception of express constitutional limitations on the legislature. The older cases in all the state courts are based upon English precedents. These precedents never suggest any question of lack of power in the legislature, and when legislative power began to be questioned it was questioned by way of a claim that the legislature was invading rights which had been respected at least, if not established, by common law decisions and which were claimed to be under the protection of the constitutions. The newly introduced doctrines of restraint upon the legislature sought to shelter themselves behind the venerable robe of the common law. The spell that requires every crusade in Anglo-Saxon countries to be inaugurated under the guise of a vindication of ancient rights was over them also. An examination of the earlier cases commonly cited in discussions of this subject will show—like ¹Soper *vs.* Harvard College in Massachusetts in 1822, holding that an act forbidding livery-stable keepers to give credit to undergraduates of Harvard was a

¹ *Federalist*, No. 62, Lodge ed., p. 387.

² 1 *Pick.*, 177.

valid police regulation, or the still earlier and more noticeable ¹*Republica vs. Duquet* in Pennsylvania in 1799, upholding the right of the city of Philadelphia to forbid wooden buildings in certain districts under a charter authorizing it to regulate its own police—all to be determined upon mere English precedent. It had been wont to be so, therefore it should continue to be so was the ruling. Of course there was some discussion of public policy and of the relation of the laws in question to the constitutions.

The same thing is true of the discussion of the Massachusetts license provisions, as in ²*Nightingale's case* in 1831, holding a conviction good against him for selling without license, such as was required by the Boston civil authorities, produce not grown by himself. It is also true of the numerous cases in that state and elsewhere following this one, just as it was true of ³*Van Dine's case* in 1828 in the same state, where a law prohibiting unlicensed persons carrying offal through the streets was held valid upon English precedents. So far as Massachusetts is concerned, it seems clear that the results in these cases are simply a victory of solid English precedents over the theories embodied in her constitution.

Her commanding position among the Northern states assured a general prevalence of such practical results among them.

In New York the same influence prevails. In 1827 the case of ⁴*Vanderbilt vs. Adams* held that lawful possession of a wharf was no defense to an action for a penalty incurred by refusing to comply with an order of a harbor-master, made in pursuance of his authority from the city, that room be made at the wharf for an incoming steamer. The ownership of the wharf was not allowed to interfere with that control of the harbor which was necessary in order to maintain the standing of the port, and the combined weight of precedent, usage and public interest were held to outweigh the theoretical rights of property supposed by many to be declared in the state constitution.

In ⁵*Stuyvesant vs. Mayor* in the same year the plea of ownership and of a hundred years' usage of Trinity Churchyard as a burial-place was not sufficient to avoid a conviction for interring a body there contrary to an ordinance of the city. Eloquence and learning appealed in vain to the new constitutional doctrines to aid vested

¹ 2 *Yates*, 493.

² 11 *Pick.*, 168.

³ 6 *Pick.*, 187.

⁴ 7 *Cow.*, 349.

⁵ *Id.*, 588.

rights and the sacredness of contracts against English rulings and the manifest needs of public policy. The latter urged the sustaining of the ordinance, and sustained it was. Something more than a paper constitution is needed to turn aside an established course of public action and lead officers to surrender power whose use has become habitual and is supported by public sentiment around them. The power to so order the use of property that it should not prove pernicious to the citizens generally was so plainly necessary that no general provision of a bill of rights could take it away.

So in 1831, when in *Beatty vs. Perkins* an attack was made on search warrants through the means of an action of trespass against the one who procured it, English precedents were wholly followed by the court in rejecting the new action. Before this, in 1826, in the case of *Brick Presbyterian Church vs. Mayor of New York*, an express agreement by the city authorities of New York that the premises conveyed by them to the complaining church should be used as a cemetery was appealed to in vain, and the clause of the federal constitution against impairing the obligation of contracts held of no avail to bind the corporate powers of the city,

"which had been given her to use and not to sell or convey away."

The inhabited part of the city had, when the site of the cemetery was by the city conveyed to the church for the purpose, not extended so far, and the location had been sufficiently removed. With advancing population its continued use for that purpose endangered the health of the surrounding people, and an ordinance forbidding its further employment for the purpose for which it was granted was sustained.

In *Buffalo vs. Webster*, in 1833, an ordinance of the city requiring all hucksters to take out license was upheld and enforced against one not an inhabitant, and in *Mayor vs. Lord*, in 1837, it was determined that the city of New York was liable for property destroyed in order to stop a conflagration only to the extent provided in the statute of the state, and that the constitutional provision as to compensation did not extend to property taken in such an emergency.

So in 1836, in *Van Worman vs. Mayor*, the pulling down of barns and sheds summarily as nuisances and without trial by the

¹ 6 *Wend.*, 382.

² 5 *Cow.*, 538.

³ 10 *Wend.*, 99.

⁴ 18 *Id.*, 126.

⁵ 15 *Id.*, 262.

city authorities in guarding against pestilence, was sustained as within the power granted by the legislature and as being competent for the legislature to grant. And in the same year, in *Meeker vs. Van Rensselaer*, it was held that where the character of a building as being a nuisance clearly appeared, and it was plain that no remedy short of its demolition would renovate, no action would lie against a citizen for destroying it, much less against an alderman, and that no special authority for its destruction need be proved.

Whenever the legislative power was extended to new objects, where it had not in its favor the aid of long prescriptive use, more difficulty was experienced. So in *People vs. Jenkins*, in 1841, a statute forbidding the running of steamers on the Hudson river at a greater rate of speed than fourteen miles an hour was strenuously assailed, but the manifest public need proved a sufficient vindication of public authority in this matter.

In Louisiana, however, as early as 1832, an ordinance of the city of New Orleans providing for the summary sale of articles left on the levee without notice to the owner was held unreasonable as not being necessary for the maintenance of good order on the levee, and so an unwarrantable invasion of property rights and forbidden by the constitution. In New York, on the other hand, in the same year of 1832, the right of the city authorities of Albany⁴ to destroy summarily a floating "ark" built opposite to certain piers in "The Basin" at that city which might inconvenience canal traffic was upheld almost wholly on grounds of necessity and English precedents. Constitutional arguments are merely touched upon by either court or counsel, and the case is a striking example of the force of common law precedent as against constitutional doctrine.

Indeed, the noticeable thing in all these earlier cases and the vast number of others from various parts of the country that might be cited is the comparatively slight hold that constitutional doctrines limiting the powers of legislatures have in this line of cases. It is true that they are, for the most part, merely additional examples of powers long habitually exercised; and the attitude taken toward the constitutional provisions is generally that when they were adopted these uses of power were common and are to be presumed to have been known, and if they are not interfered with in express

¹ *Wend.*, 397.

² *1 Hill*, 469.

³ *Laufear vs. Mayor*, 4 *La.*, 97.

⁴ *Hart vs. Albany*, 9 *Wend.*, 571.

terms it is also to be presumed that mere general provisions as to personal or property rights were not intended to affect them.

In all these earlier cases the legislative authority is, as before suggested, rarely attacked. The question debated and passed upon is more frequently the extent to which that authority has been, or is intended to be, exercised in the given case. And it is further to be observed that none of them use the term "police power." They talk about "Power to make police regulations," "Control of matters of internal police" and use the phrases we found in the federal cases before that of the City of New York *vs. Miln*. The first state case found in a somewhat extended examination to use the term "police power" in the court's opinion is ¹*Jones vs. The People*, in Illinois in 1852 by Judge Trumbull.

He holds that the passage of a prohibitory law to prevent all sale of ardent spirits except for medical, mechanical and sacramental purposes is "a proper exercise of the police power" and cites the License cases, *5th Howard*. The phrase police power occurs in briefs and arguments of cases in the state courts a few times prior to that, notably in those of Massachusetts and Michigan.

Judge Trumbull transfers it evidently with precisely the meaning broadly attached to it in the federal cases, as by Justice Barbour in New York *vs. Miln*, and by all the others who used it in the License and the Passenger cases—the sense in which Judge Wayne declares it was always used in the argument in the latter cases. This is its "national" as opposed to its "local" sense, the sense in which Judge Marshall first employed it. For Judge Trumbull, as for the judges from whom he took it, it means the remaining powers of the state after giving to the general government its authority and setting aside such ordinary powers as by constant use have required a separate identity and a definite name, as "taxation," "eminent domain," "administration of justice," etc.

That it was by him or by any judge up to the time now reached, 1852, confined to cases of overwhelming necessity, such as had been in England held to relieve officers from accountability for damages to individuals for which otherwise they would be liable, is clearly not true. Overwhelming necessity might conceivably call for the forbidding of sales of spirituous liquors or even for their destruction, as was held in the case of ²*Jones vs. Richmond* in a

¹ 14 Ill., 196.

² 18 Gratt., 517.

suit brought for the value of liquors destroyed by city authorities, April 3, 1865, in anticipation of the entry into the city of the northern army. But the adoption of a policy of prohibition can hardly be upheld by "overwhelming necessity" or the "right of self-preservation, inherent in every organized community." Although there may be no doubt "that some have died of drinking," we are not informed of nations being in sudden and imminent peril from such cause.

"*Salus populi, Suprema lex esto*" will hardly do for a sufficient foundation for this branch of constitutional law. And the other motto which has been thought to lie at the foundation of this power, "*Sic utere tuo ut alienum non lædas*," has to be strained a good deal to make it apply here as in many other cases of police action. The object in this instance, as in many others, is much more to prevent the citizen from using his property to his own harm than from employing it to the injury of anyone else. The fact that such is the real purpose is often urged as an objection to such legislation, but not as a reason as excluding it from being classed under the police power.

That the police power includes the field embraced under both of the maxims is no doubt true. If the term includes all the unclassified powers of the state, this will be among them. That it includes much more is equally certain. The example just given is sufficient to show that. The general power used in the leading case of *Vanderbilt vs. Adams* shows it still more clearly. There was no pressing danger in that case either to public or private interests. There was no application of the maxim "*Sic utere tuo ut alienum non lædas*" except by a manifest stretching of it.

The owner of the wharf was not using it to any one's injury. He merely refused, when ordered by proper authority, that of the harbor-master, to change the position of his own vessel to accommodate one coming in. No special damage was shown to have occurred to anyone, but the penalty for refusal was assessed and collected. The case has never been questioned since, and is not likely to be. The necessity for order and authority in New York harbor imposes upon those who use it not only a liability to have their property seized and applied to answer some urgent and unprovided-for need of defense against man or the elements, not only that he shall so use his property as to inflict no needless

¹ 7 Cow., 349.

injury on another, but also that he shall actively comply with proper requirements of the civil authorities in many things, in this case in adjusting and placing his ship to accommodate himself to the other arrangements of the harbor-master.

To say that this power in this instance is necessary is not to characterize it at all. It is necessary, indeed, to the public welfare, in the sense that such welfare would not be as well conserved without it as with it, but in no other. To say of any power now exercised by government that it, also, is not necessary, in that same sense, is to strip that power away as soon as such comes to be the general opinion.

To say that this general authority over persons and property is given merely to prevent them from hurting one another and justify its extension only that far, is to give a ridiculously inadequate interpretation to all the facts of our daily lives and the relations of government to them. Is the only dealing of government with us and our possessions merely to prevent harm to others? Is it all the duty of a citizen to permit without resistance his possessions to be used for the general defense in a public emergency, and to himself abstain from so using such possessions as to injure anyone? A man might, conceivably, be guilty of high treason who had failed in neither.

The suggestion of the ¹German speculators seems to be that the term police should be confined to protective action and legislation. This is, after all, only a difference in form. However it may be in Germany, a little experience with American lawyers and lawgivers will convince one that there is no difficulty in putting a requirement that any particular thing be done for the public good into the form of an elaborate protection against the evils arising from not having it done. As a practical line of division, Stein's suggestion of a danger to be avoided, as furnishing the true occasion for police action, would hardly help much. In this country, those who are called upon to defend our common school system, which has so extensively taken children out of parental control, if not allowed to do so on the ground of providing for the general welfare by extending education, have no difficulty in adjusting themselves to the situation by putting it on the basis of guarding against the evils of an uninstructed electorate.

¹ Stein's *Handbuch der Verwaltungs Lehre*, s. 113 and 186-187; Bluntschli's *Lehre vom Modernen Staat*, Vol. ii, s. 293.

For the ease of passing from negative to affirmative requirements see a recent judicial instance in ¹Geer *vs.* Connecticut, in opinion by Justice White.

¹ 161 *U. S.*, 519.

CHAPTER V.

POLICE POWER AND PROPERTY AND CORPORATE RIGHTS.

We have seen the right of the state courts to pass upon the constitutionality of laws established, and we have seen those courts passing upon that question with regard to what they called police regulations. We have seen those decisions supported by English precedents referring back to the old doctrine of overruling necessity, and also to the maxim of *Sic utere tuo ut alienum non lædas*. That these furnish too narrow a basis for the successful support of legislative authority, when crowded against on the one side by federal restrictions and upon the other by the pressing forward of provisions embodied in state constitutions in defense of personal and property rights, was sought to be shown in the last chapter.

That there must be left to the legislatures of the states a wider latitude of providing for the general welfare, and that as against a too urgent claim of individual rights an appeal would be made to a police power resting upon that principle, just as such power had been developed to support the states against pressure from the side of the federal government, might have been anticipated and was what took place.

The pressing of individualism against prohibitory liquor laws brought the police power under that name into the Illinois Supreme Court in 1852, as has been seen. The case, however, that seems to have really begun the vogue in the state courts of this phrase was ¹ *Commonwealth vs. Alger* and the opinion of Chief Justice Shaw of Massachusetts in that case in 1853. This case furnishes a starting point for citations directly relating to the police power in most of the constitutional discussions that embrace the subject. It deserves the position both on its own account and that of the Massachusetts magistrate who wrote the opinion, of whom Choate said that he was always approached with the feeling which a pagan has for his idol—that he was very ugly, but very great.

The question raised was whether the owner in fee of real estate

¹ 7 *Cush.*, 53.

could have his use of it controlled by the state in the interests of the general public. The defendant in the case had been indicted and found guilty of violating certain laws of that commonwealth which forbade the erection of any wharf or the placing of any material for one in certain parts of Boston harbor.

He had in defiance of law built a wharf on the flats before his land, less than a hundred rods from the shore line and so as not to impede navigation, but within the harbor lines where such structures were forbidden. The ancient charters of the commonwealth of Massachusetts gave to such a proprietor along the shore the ownership of the soil to low-water mark :

"Where the sea doth not ebb above a hundred rods, and not more wheresoever it ebbs further ; provided, that such proprietor shall not by this liberty have power to stop or hinder the passage of boats or other vessels in or through any sea, creeks or coves to other men's houses or lands."

The ancient charter granting the right to the proprietor long antedated the statute fixing the lines within which it was not permitted to erect or maintain a wharf. There was no question that when the law fixing the harbor lines was enacted the proprietor had an estate in fee simple in the land covered at high tide to the extent of one hundred rods out from high-water mark, and subject only to a limited right of way to ships and vessels, and that such right of way was not impaired by Alger's wharf. Could the legislature invade this right with its harbor lines and prescribe how it should be used and enjoyed ?

Chief Justice Shaw says yes:

"We think it is a settled principle, growing out of the nature of well-ordered civil society, that every holder of property, however absolute and unqualified his title, holds it under an implied liability that his use of it may be so regulated that it shall not be injurious to the equal enjoyment of others having an equal right to the enjoyment of their property, nor injurious to the rights of the community. All property in this commonwealth, as well that in the interior as that bordering on tidewaters, is derived directly or indirectly from the government, and held subject to those general regulations which are necessary to the common good and general welfare."

"Rights of property, like all other social and conventional rights, are subject to such reasonable limitations in their enjoyment as shall prevent them from being injurious, and to such reasonable restraints and

regulations, established by law, as the legislature, under the government and controlling power vested in them by the constitution, may think necessary and expedient."

He proceeds to say that he is not referring to the right of eminent domain :

"The power we allude to is rather the police power, the power vested in the legislature to make, ordain and establish all manner of wholesome and reasonable laws, statutes and ordinances, either with penalties or without, not repugnant to the constitution, as they shall judge to be for the good and welfare of the commonwealth and of the subjects of the same."

It is to be remembered that the chief justice is applying to legislative action that Massachusetts constitution mainly prepared by John Adams and thought by him to represent "Locke, Sidney, Rousseau and De Mably, all combined and reduced to practice."¹

That constitution declared in the plainest terms the sacredness of ² property rights, as against both citizen and state. The declaration of rights came first in that constitution, and closes appropriately with an attempt at providing a complete separation of the three powers of government—legislative, executive and judicial—to the "end it may be a government of laws and not of men."³ It was fitting that its declaration of rights should conclude with this sentiment of Harrington's. That constitution when originally adopted contained property qualifications for the exercising the right of suffrage. According to Harrington's well-known theory, which Webster was accused of holding, property was the true basis and the upholding of it the chief end of government.

It was also fitting, and indeed certain, that just where the constitutional protection of property was most strenuously declared, it would first come distinctly into collision with the assertion of governmental "indefinite supremacy." Judge Shaw had in 1846, in the case of the 'Commonwealth *vs.* Tewksbury, applied the maxim "*Sic utere tuo ut alienum non lædas*," and had held that a statute prohibiting the removal of stones, gravel or sand from the beaches in the town of Chelsea was valid. In doing so he made extensive use of English precedents. He made no use of the term police power in his opinion in that case, though it seems to have been referred

¹ *J. Adams' Works*, 216.

³ *1 Poore's Charters*, 949.

² Declaration of Rights, Sec. 10.

⁴ *11 Met.*, 55.

to in the argument. In *Commonwealth vs. Alger* he now holds that besides the obligation to refrain from injuring others there is an obligation to obey authority *qua* authority, even if it affects injuriously the use and control of property by the owner. His declaration that all property is held subject to such reasonable regulations as the legislature, in providing for the general welfare, may enact is given above.

Later on, in the same opinion, instancing a powder magazine or a slaughter-house, he asks who will fix the degree of proximity that shall make it a nuisance :

" Every one might agree that two hundred feet would be too near, and two thousand feet would not be, and within this margin who shall say, who can know, what distance shall be too near or otherwise ? An authorized rule, carrying with it the character of certainty and precision, is needed. The tradesman needs to know before incurring expense how near he may build his works without violating the law or committing a nuisance. Builders of houses need to know to what distance they must keep from the obnoxious works already erected in order to be sure of the protection of the law for their habitation. This requisite certainty and precision can be obtained only by a positive enactment fixing the distance within which the use shall be prohibited as obnoxious and beyond which it will be allowed, and enforcing the rule thus fixed by penalties."

The chief justice continues his argument as to the frequent necessity of a fixed boundary, and finally applies it to the harbor, in which he finds that evidently there must be a place where further extension of wharves cannot be tolerated by the public interest. That being so, some one must fix a line, and the proper method is for the legislature to make a law on the subject :

" It is for them, under a high sense of duty to the public and individuals, with a sacred regard to the right of property and to all other private rights, to make such reasonable regulations as they may judge necessary to protect public and private rights, and to impose no larger restraints upon the use and enjoyment of private property than are in their judgment strictly necessary to protect and preserve the rights of others."

Evidently he includes among such rights of others a provision for the public welfare by compelling the observance of regulations as such. The chief justice finds involved in this case a common-law right to free and safe navigation which, he says, all the shore-line proprie-

tors are subject to. He finds a public need for a fixed boundary for the extension of such right, and that one had been established by harbor lines outside of which no private wharf might extend. He finds that Alger's wharf, by an extension built after the law was enacted, passed this line, and that he, therefore, incurred the penalty provided, although there was no interference with the actual use of the public right of way, nothing beyond simply getting outside the line and so violating the law.

The decision is, therefore, an emphatic vindication of public authority as authority, and against rights of property asserted under the Massachusetts constitution. The commanding reputation of Chief Justice Shaw, as well as that of the court over which he presided, with the thoroughness of his discussion of the principles involved, the clearness with which he perceived what it was that he was adding to the English precedents on the same subject, have made this, perhaps, the most distinctly leading case in all the discussions of the relation of the police power to the state constitutions. It comes first under that heading in Prof. Thayer's *Cases on Constitutional Law*. It is the one quoted from by Judge Cooley for his definition in the chapter on this subject in his *Constitutional Limitations*. It figures on page 1 of Prentice's *Police Powers*. That the common law precedents relating to exercise of power by executive officials and subordinate municipal bodies must inevitably have their doctrines widened when applied to the sovereign legislature was a foregone conclusion. That Chief Justice Shaw was there to do it, and do it in old Massachusetts, may be fairly termed another example of what Bancroft considered the care of Providence for the Great Republic. It furnished a distinct foundation for the general doctrine, previously to that time somewhat unconsciously applied, that the sweeping provisions of the constitutions, even where their broad terms seemed contrary to the principles of the common law and to narrow greatly the field of legislation as compared with that occupied by the British Parliament, were made not in opposition to but in forgetfulness of those principles and were not to be given such an effect.

The sound sense of both courts and public established that the property rights which the constitution sanctify are, as Judge Shaw declared, held subject to the controlling power of the legislature. No mere implication from general statements of the doctrine of personal rights was allowed to seriously impair the law-making

power of the people's representatives. Those declarations were properly held to relate to rights already in existence and in practical enjoyment, and restrictions upon the powers of the legislatures, to be brought about at all, must have been made in express terms.

It was as natural as it was fortunate that this prominent struggle between the legislature on the one hand and private interests, asserted upon the basis of the bill of rights, on the other, was over a question in reference to which legislative power had been immemorially employed. It may be noted that in *Commonwealth vs. Alger* we have a recurrence to Taney's gunpowder illustration which suggested the term police power to Chief Justice Marshall. Evidently the use of the term by Chief Justice Shaw is derived through the case of *New York vs. Miln* from Marshall.

Chief Justice Redfield's decision in ¹ *Thorpe vs. Rutland, Etc., R. R. Co.* ranks, perhaps, with *Commonwealth vs. Alger* as a landmark in the development of the police power. The company had been chartered in 1843. In 1849, a law of Vermont made it the duty of all railroad companies to fence their lines and to put cattle guards at all crossings. The road claimed that its charter, antedating the law, empowered it to maintain its track and equipment and said nothing about such fences and crossings. It, therefore, claimed that because of this charter it was exempt from any changes in its duties, because the law requiring such additional duties must be held to impair the obligation of the contract contained in the charter. Judge Redfield made short work of the contention that the railroad company had any more rights than an individual would have who had taken the same grant of a franchise to build, equip and maintain a railroad and take toll of passengers. If any privileges belong to the company it must be on account of a special consideration and because given in express terms.

The legislative power he found by universal agreement to be supreme in the English Parliament and to have passed with their independence to the states in the full measure possessed by Parliament, except as it was found to be limited by state or federal constitutions.

"It was supposed that the question was settled in this court in *Nelson vs. V. & C. R. Company*, 26 *Vt.*, 717. The general views of the court are there stated as clearly as it could now be done. But as the general question is of vast importance both to the roads and to the public and

¹ 27 *Vt.*, 140 (1855).

has again been urged upon our consideration, we have examined it very much in detail. We think the power of the legislature to control existing railways in this respect may be found in the general control over the police of the country, which resides in the law-making power in all free states, and which is, by the fifth article of the bill of rights of this state, expressly declared to reside perpetually and inalienably in the legislature, which is, perhaps, no more than the enunciation of a general principle applicable to all free states, and which cannot, therefore, be violated so as to deprive the legislature of the power, even by express grant to any mere public or private corporation. And when the regulation of the police of the city or town by general ordinances is given to such towns and cities, and the regulation of their own internal police is given to railroads to be carried into effect by their by-laws and other regulations, it is, of course, always in all such cases subject to the superior control of the legislature. That is a responsibility of which legislatures cannot divest themselves, if they would."

"This police power of the state extends to the protection of the lives, limbs, health, comfort and quiet of all persons and the protection of all property within the state. . . . So far as the railroads are concerned, this police power, which resides primarily and ultimately in the legislature, is twofold: First. The police of the roads, which in the absence of legislative control the corporations themselves exercise over their operatives, and to some extent over all who do business with them or come upon their grounds, through their general statutes and by their officers."

And he proceeds to show what the roads may do and what they may be required to do by legislative enactment, that the rest of the community may be reasonably safe; and his enumeration shows how extensive he regarded the powers of the legislature. He has anticipated most of the modern statutes on this subject:

"Second. There is also the general police power of the state, by which person and property are subjected to all kinds of restraints and burdens in order to secure the general comfort, health and prosperity of the state. Of the perfect right in the legislature to do which no question ever was or upon acknowledged general principles ever can be made, so far as natural persons are concerned. And it is certainly calculated to excite surprise and alarm that the right to do the same in regard to railways should be made a serious question. This objection is made generally upon two grounds: 1st. That it subjects corporation to virtual destruction by the legislature; and, 2d, That it is an attempt to control the obligation of one person to another in matters of merely private concern."

He then admits that the franchise of a private corporation is private property, and he grants, on the authority of the Dartmouth College case, its right to protection as such, but declines to adopt such a construction as would put the whole subject, not only of railways but all other corporate interests, beyond legislative control. He maintains the right to enact new restrictions reasonably requisite to the public welfare.

He, too, brings up the slaughter-house and powder-mill illustrations, and he, too, cites the American and English cases as to the principles on which executive officers are authorized to interfere with private property—the right to abate nuisances and to act in sudden emergencies, both of which had been so often upheld both in this country and England. He also recognizes as clearly as did Chief Justice Shaw that to support the claim of the legislature to the power he is sustaining to its full extent, he must draw upon something more potent and get something from the supreme legislative authority of Parliament.

Whether Judge Redfield, or Judge Shaw, or Judge Trumbull in *People vs. Jones* perceived distinctly that in holding the constitutional provisions in the bills of rights to have been enacted with reference to the principles and precedents of English law, and not to be considered to interfere with such principles unless they did so in explicit terms, they were making that law and those precedents the real constitution of their states, more or less in disregard of those principles of "Locke, Sidney, Rousseau and DeMably combined and reduced to practice," which John Adams thought had been enacted, is not quite clear.

Chief Justice Redfield closes :

"We conclude, then, that the authority of the legislature to make the requirement of existing railways may be vindicated because it comes fairly within the police of the state. 2. Because it regards the division fence between adjoining proprietors. 3. Because it properly concerns the safe mode of exercising a dangerous occupation or business; and 4. Because it is but a reasonable provision for the protection of domestic animals, all of which interests fall legitimately within the range of legislative control, both in regard to natural and artificial persons."

The police power, now fairly under that name, just a little past the middle of the century, had fully inaugurated its struggle to maintain government control over corporate aggressiveness and pri-

vate property interests, intrenched behind constitutional provisions. This struggle, begun as we have seen in a conflict with federal authority in *Brown vs. Maryland* and continued for twenty-five years in the federal Supreme Court, was now to go on for a time in the state courts.

The vast new interests created by railway development were practically all under state laws. The bringing of those interests to submit to legislative control inevitably produced conflicts. The extension of legislative power to new subjects, where its action was to be justified only by analogy to old precedents and not by the direct application of them, offered special openings for the exploiting of the meaning of general expressions in the state constitutions.

Then, too, the extension across the country of lines of railroad, controlled by great corporations established in other states, strongly tended to precipitate conflicts. The people, whose capital was thus placed under the control of a distant legislature in another state, were jealous and afraid. The lawmakers of that state too often were hostile and regarded the owners of the property and corporate interests as to which they were legislating as aliens, if not interlopers. The case of *Thorpe vs. Rutland, Etc., Ry. Co.* has been perhaps the most influential case in settling the line along which the power of the state legislatures over railway corporations has been asserted and maintained.

CHAPTER VI.

THE POLICE POWER AND STATE CONSTITUTIONS AND LIQUOR AND SUNDAY LAWS.

The force of popular feeling meanwhile had introduced another line of legal disputes over the authority of the legislature in the states. It has been mentioned that the Supreme Court of Illinois in 1852 declared that total prohibition of sales of intoxicants for use as beverages was a proper exercise of the police power. Licensing legislation had long been recognized especially in New England, and Judge Trumbull had no difficulty in extending the precedents to complete prohibition.

During this and the few years immediately preceding and following, a great wave of sentiment in favor of compulsory temperance had gone across the country and so a number of cases in the higher courts relating to this subject resulted. In 1853, the next year after the decision just mentioned in Illinois, came the case of *Our Home vs. The State in Iowa*, in which the question was as to the validity of a law forbidding sales of intoxicants as beverages and condemning as public nuisances places where they were sold in violation of the law. Justice Woodward, another New Englander, in a strong opinion upholds the right of the state to legislate upon this matter in the way it had done, and discusses the whole subject in the light of *The Mayor of the City of New York vs. Miln*. He cites, too, the License cases and especially a decision by Judge Shaw in Massachusetts, *McGirr vs. Fisher*, in which also the Massachusetts chief justice acted upon English and early American precedents, far more than modern constitutional provisions, in upholding a liquor law of that state. Judge Woodward found the Iowa law valid against all claims of the sacredness of private property.

In the following year, 1854, Michigan, in *1 People vs. Hawley*, following principally the federal cases, finds the prohibition of sales of intoxicating liquors a rightful use of the police power. But the

¹ 3 Mich., 330.

same question was in Indiana, in *Beebe vs. The State*, decided otherwise by a majority of the state Supreme Court in a judicial debate almost as energetic as any of those in the federal Supreme Court.

Here the new constitutional doctrines were fully exploited, and are characterized as the "great discovery" of rights in the people as against the legislature, as well as against executive officers. The court holds, through Chief Justice Perkins, that a law forbidding any sales of intoxicating liquors except by the agent of the state, and by him only for certain named purposes, is an unwarranted invasion of "industry" as well as of individual rights. The dissenting opinions by two of the judges are very interesting, as showing what is the real basis supporting the claim for extended police power for the states, namely: The feeling of its absolute necessity and the fact of its long exercise.

Indeed, the first reason, which is always dwelt upon, evidently arises in large degree from the latter. Because the community has not done without such use of political power is evidently in large part the foundation of the fear that it cannot do so. It is interesting to note that the majority of the court, in holding that the legislature had no power to pass the law, do not propose to limit absolutely the sovereignty of the state. They still hold that the state can pass such a regulation, but they say the state is the sovereign and not the legislature. The constitutional restrictions they think have not left so much power in the legislature, and they argue the sovereignty of the people in the state in terms like those of James Wilson in the early decisions of the federal Supreme Court and in his lectures.

The Indiana Supreme Court was not alone in thus standing out against extreme prohibition by act of the legislature. The New York Court of Appeals in 1856 passed upon the cases of *Wynehamer vs. The People* and *The People vs. Toynbee*. The legislature of New York in 1855 passed an act making it the duty of every sheriff, constable, marshal or policeman to arrest any person whom he might see actually violating section 1 of the act.

This section provided that intoxicating liquors should not be sold or kept for sale by any one anywhere, nor given away, nor kept for that purpose anywhere except in a dwelling-house, in no

¹ 6 Ind., 501.

² 13 N. Y., 378.

part of which was any tavern, store, grocery shop, boarding-house, or room kept for gambling, dancing or other public recreations, and should not be kept or deposited in any place except such dwelling-house, or for sacramental purposes in a church, or in some place where a trade or art was carried on demanding use of the same as part of a regular business, or in transportation to some such lawful place.

Liquor might be given away by a physician in his regular practice and the law was not to apply to any liquors permitted to be sold by any treaty or law of the United States. It was made the duty of any officer making an arrest under the act to seize all liquors kept in violation of the law together with the vessels in which it might be, and at once convey the person arrested before a magistrate and store the liquor and make complaint of the violation of the law to the magistrate. All the liquor so seized, on conviction of the person so arrested, if not claimed by some one else, was to be forfeited, and when so forfeited to be destroyed on warrant from the magistrate, and the vessels sold on execution.

Police magistrates, justices of the peace, county judges, city judges and recorders had power to act in such cases and to hold courts of special sessions to try such offenses, and need not hold an examination of any person brought up on such charge, but might proceed to trial as soon as the complainant could be notified. They had power to adjourn for good cause not longer than twenty days. A jury of six was to be called if demanded by the defendant at the time of pleading. No one in the business of selling liquors or who had been convicted under the act could serve as juror, and proof of sale established *prima facie* that it was unlawful, and proof of delivery should be held to show a sale.

The convicted party forfeited all liquors kept by him contrary to the law, was fined fifty dollars for first offense, one hundred dollars and thirty days in jail for second, and for subsequent offenses not less than one hundred nor more than two hundred and fifty dollars, with imprisonment from three to six months, and if fine and costs were not paid, confinement for not less than one day for each dollar so unpaid was required. There was a provision for sale of liquors by specially authorized persons for medicinal, mechanical and sacramental purposes, and also for the sale of domestic wines and cider, and also for the sale of liquors imported under protection of the United States laws by the persons importing them,

and also for the sale of articles containing spirits but not drinkable. A further clause provided that no one could maintain an action on account of liquor sold without proving a sale in all respects in accordance with law; and there was another that all liquors kept in violation of the law should be deemed a public nuisance and summarily destroyed.

Wynehamer had been indicted for selling intoxicating liquors in violation of the law just recited. In accordance with the act evidence was introduced tending to show that brandy was sold to several people at his bar in Buffalo on July 4, 1855, and drunk on the premises. With that the state rested. The court was asked to discharge him because no offense had been shown; and that it did not appear but that the liquor sold was imported and such as he had a right to sell; and that the act was void as violating the provisions of both state and federal constitutions in respect to unreasonable searches and seizures, and depriving him of property without due process of law; and that it had not been shown that the liquor was not authorized to be sold under the law. The request was denied, and he offered to prove that the liquor was drawn from an imported package on which duty had been paid; and the evidence was refused. He offered to prove that the liquor was owned by him and in his possession before the law went into effect, which was also refused. He was found guilty, fined fifty dollars and costs. This judgment, having been affirmed by the state Supreme Court in banc, was brought for review to the Court of Appeals.

Toynbee was arrested by a police officer in Brooklyn, who made information to seeing him have brandy and champagne and seeing him engaged in selling it, and that defendant was brought before the magistrate to be dealt with according to law, his liquor having been seized. He asked to be discharged because of the unconstitutionality of the law. This was denied. He pleaded not guilty and was convicted on evidence of having and selling liquor alone, and was fined and the liquors ordered to be destroyed. This judgment was reversed by the Supreme Court in banc, and the state took the case to the Court of Appeals, where the two were heard together.

Touching the constitutionality of the law as affecting property rights at the time of its enactment, the court by Justice Hubbard says :

"This is purely a question of legislative power under the fundamental law. It is needless to say that the court has no concern with the wisdom or expediency of the enactment to accomplish the ends indicated by the title. The police of this government from its foundation certainly vindicates the political necessity and economy of stringent laws circumscribing the sale of spirituous liquors.

"I entertain no doubt of the constitutional competency of the state legislature to prohibit entirely the commerce within the state in liquors as a beverage by laws prospective in their operation. . . . The police power is of necessity despotic in its character commensurate with the sovereignty of the state, and individual rights of property beyond the express constitutional limits must yield to its exercise, and in emergencies it may be exercised to the destruction of property without compensation to the owner and without the formality of a legal investigation. . . . I know of no limits to the exercise of the police power vested in the legislature except the restrictions contained in the written constitution. . . . The grant of power in that instrument is generally of all the legislative power of the state; what this expressly is cannot well be defined."

He finds in the legislature all the power of that nature in the state subject to the restrictions in the bill of rights, and affirms that there is no right in the courts to set any higher-law limits. He finds the law under consideration bad, as acting upon existing property rights and not merely a regulation governing future transactions. He finds that due process of law means by a judicial proceeding, and that the statute in declaring all liquors held for use as beverages a nuisance and subjecting them to forfeiture as a deprivation without due process of law and is a despotic act, inasmuch as the liquor is not, *per se*, a nuisance.

This, together with the abolishing of all right of sale within the state, makes it, in his opinion, an act of confiscation. He also holds the law bad as denying a regular jury of twelve men, which he holds to be guaranteed to every man charged with an offense for which he may be deprived of his liberty. Two of the judges, however, thought the law was valid.

This law has been given as an extreme instance of severe legislation prevalent at that time and the strongest upholding of constitutional property rights which is any longer cited with any approval, and this case is generally disapproved. The decisions of about the same time upholding such laws of other states not quite so stringent in their terms do not generally show much regard for any

damage to the value of property on hand by reason of the preventing of sales. There is in the same year, 1856, a Connecticut case, ¹ *State vs. Wheeler*, a law that in general terms prohibited entirely the selling and keeping for sale of intoxicants to be used as a beverage is held valid and a proper exercise of the police power, notwithstanding any effect which it might have upon the value of property on hand or contracted for.

² *People vs. Gallagher*, in *4th Michigan*, is to the same effect; and also holds it doubtful whether a law is ever bad merely for contravening some general principle or constitutional right and not any express declaration of the constitution. This case shows how thoroughly the courts were prepared to enforce common-law doctrines and follow precedents formed under a legislature which recognized no express limits to its powers.

It is interesting to compare these decisions with another of the same period in regard to the constitutional provision that property should not be taken away without due process of law, and see the way in which this ancient provision was transferred from its old office of limiting the action of the executive to its American one of answering a like purpose with regard to the legislature. The case is that of ³ *Murray vs. Hoboken Land, Etc., Company*, decided in 1855 in an opinion by Justice Curtis.

Collector of Customs Swartwout, of New York, had been found in 1838 nearly a million and a half of dollars in default in his accounts with the federal government. A distress warrant had during that year been issued against his property by the solicitor of the treasury and levied upon his lands. The lands were in June, 1839, sold by the United States marshal to the defendant company. In the meantime certain other creditors of his procured judgments and had levied executions on the same land in April before.

They claimed the levy and the sale under the distress warrant was void and proceeded to sell under their execution to the plaintiff Murray who then brought an action of ejectment, claiming that a sale under a mere distress warrant from the treasury was not due process of law, and that the constitution of the United States vested the judicial power of the federal government "in one Supreme Court and such inferior courts as Congress may from time

¹ 25 Conn., 290.

² 4 Mich., 244.

³ 18 How., 272.

to time ordain and establish ;" and further that such judicial power should extend "to all controversies to which the United States should be a party."

The resolution by Judge Curtis of the question thus raised is so typical of the American way of dealing with such problems and of the whole development of our subject that it deserves analyzing in this connection. After admitting that the provision vesting all judicial power in the courts was conclusive, if the act of adjusting the account and ascertaining the balance due that might be levied for was a judicial act, he turns entirely away from that question until he shall first have answered the other, as to whether the distress warrant and the sale under it were due process of law. To settle this, of course, he turns back to the English precedents and shows, first, that the phrase as we have it is simply Lord Coke's version of "law of the land" in Magna Charta. Then he examines further to see whether under the old precedents similar proceedings were a part of the law of the land in England, and, of course, as the proceedings were simply copied from English practice, he finds no difficulty there. Then he finds in the laws in nearly all the states evidence that this difference in the proceedings against public defaulters from those against ordinary debtors was well known and long practiced in this country. Therefore, it must have been a due process of law when the constitution was adopted and to have been forbidden by it needed to be expressly mentioned.

So much is easy ; and is exactly the process by which in Massachusetts ¹Soper *vs.* Harvard College, ²Nightingale's case and ³Goddard's case, and in Maine ⁴Pierce *vs.* Kimball, and in New York ⁵Vanderbilt *vs.* Adams and ⁶Coates *vs.* Mayor, were decided, and the exercise of summary powers by magistrates, and the laws conferring such powers, sustained against the general language of the state constitutions. The practices were in existence ; they were well known ; if it was intended to do away with them, it would have been done in express terms. Above all, they were needed. So, although it is admitted by Justice Curtis that due process of law, in cases requiring a trial, demands that there be regular parties, a tribunal and a course of procedure assuring a

¹ 1 *Pick.*, 177.

² 11 *Pick.*, 168.

³ 16 *Pick.*, 504.

⁴ 9 *Me.*, 54.

⁵ 7 *Cow.*, 348.

⁶ *Id.*, 585.

hearing, yet, as there had been in England from time immemorial cases where liability was fixed by a simple declaration of the king's accounting officer, notwithstanding *Magna Charta*, so in this country the same might be done, notwithstanding the constitution.

The other question, as to the exercise of judicial power by the accounting officers in making a statement of Swartwout's account and issuing on it process against both his person and property, is treated in the same manner and on the basis of the same precedents, but they are not applied with the same confidence. The same result is reached by similar means, but not with the same directness.

Judge Curtis does not in express terms find in the British government the doctrine of a separate judiciary. He goes no further than to assume it. The requirement of due process of law being in substance in the great charter, English precedents in this case, where an act of executive officers was in question, fairly applied to it; but no hard-and-fast line between judicial and executive acts had ever been attempted in England. To this question it was harder to find English authorities to fit. So it happened that this portion of the opinion is simply a fairly conclusive argument that an absolute division is impossible, and that the precise boundary between the two, if there is to be one, must be fixed by Congress or simply by usage. Of course, the fact that the delinquent could take an appeal from the finding of the accounting officers to the courts and have the whole matter retried there, left Judge Curtis very little standing room from which to claim any very essential difference in nature between the power exercised by the accounting officers and that exercised by the courts, at least in this matter.

The way in which the old precedents are finally applied to the determination of this question, also, of judicial or non-judicial power, shows the relations of the ancient parts of our law to the newer constitutions, and is worth examining. After finding in the matter one in which it depended upon the will of Congress whether the act of ascertaining the balance due and issuing process to collect it should be given to the courts as a judicial or retained by the treasury as an executive function, and a part of the duty of collecting the revenue, another distinction must be drawn, or else everything would be liable to depend upon the will of Congress as

to whether it should go to the courts for determination or be peremptorily decided by executive officers. So he holds that in collecting the revenue the entire jurisdiction is in the United States; and it can deal summarily with its officers and is not amenable to process, and its submitting to an appeal to the courts is a mere voluntary concession on its part.

But notice the limit that he finally puts upon this power on the part of Congress thus to place questions among judicial or non-judicial ones as it may please :

" We do not consider Congress can either withdraw from judicial cognizance any matter which from its nature is a subject of a suit at the common law, or in equity or admiralty, nor, on the other hand, can it bring under the judicial power a matter which from its nature is not a subject for judicial determination."

In other words, if the matter in question is such as have heretofore gone to the courts of law, equity, or admiralty, to get their opinion before the executive can act, to them under the constitution it must continue to go. The precedents are to settle it. If, on the contrary, it is such as have been heretofore determined by the executive and ministerial officers of the government without such consulting of the judiciary, then they may continue to exercise that power till Congress chooses to say they must lay it aside; and if the putting of it into the hands of the courts would involve too grave a departure from usage that may not be done.

The final result is that this admired and admirable decision is determined in all respects by precedents long antedating the constitution. A long discussion at the bar and the production of this opinion seems the only immediate effect of establishing by the constitution three coördinate powers in the state. It is, however, probable that it is not by any means altogether so. There are precedents and precedents and they may be applied in various ways. It is by no means certain that we are where we would have been had there been no distinct declaration in favor of a strict separation of judiciary, executive and legislature. The doctrine has, at all events, not been without its effect upon the development of the police power, as has been seen.

Meanwhile, the new phrase was passing out of the decisions into text-books and treatises. In 1857, Judge Sedgwick published his *Construction of Statutory and Constitutional Law*. In this he gives considerable place to the police power chiefly from the point of

view of Judge Shaw as set forth in *Commonwealth vs. Alger*. Judge Sedgwick evidently regards the police power and the "general power over private property which is necessary for the orderly existence of all governments" as being the same thing. He discusses the police power mainly as a limitation on rights of private property, and with regard to the extent to which it must be held to qualify the apparently absolute guarantees of such property rights in state and federal constitutions.

His point of view is that which regards the power as one of control for the benefit of society and as a great reserved social right not mentioned by the constitutions but in view of which they are always to be interpreted. It is with him, as with the judges we have so far seen dealing with it, a designation for the indefinite remainder of government authority which is left when the familiar and more or less definite forms are abstracted.

Besides *Commonwealth vs. Alger*, Judge Sedgwick quotes most prominently ¹ *Vanderbilt vs. Adams*. He does not seem to have noticed Chief Justice Redfield's opinion in *Thorpe vs. Rutland, Etc., Ry. Co.*, though he notes with approval the adoption by that distinguished judge in ² *Armington et al. vs. Barnet* of the doctrine of the case of ³ *Charles River Bridge vs. Warren Bridge*.

At the same term with the case of *Murray vs. Hoboken Land Company*, the case of ⁴ *Smith vs. Maryland* was passed upon in an opinion also by Justice Curtis. In that case the state of Maryland had forbidden the taking of oysters from beds within its territory by means of a scoop and had provided that vessels engaged in doing so should be forfeited if captured. The law was enforced against a Philadelphia sloop, which had a license from the United States as a coasting and fishing vessel. The control of the State over its own fishing grounds was held to be ample to sustain such legislation.

In this term came to an end the famous ⁵ *Wheeling Bridge case*, in a holding that Congress had authority to legislate as to bridges over navigable streams so far as they affected the navigation of the streams. The final authorization of the bridge by Congress was upheld.

Into the bitter waters of the controversy over the *Dred Scott*

¹ P. 435, Pomeroy's ed.

² 7 *Cow.*, 348.

³ 15 *W.*, 745.

⁴ 11 *Pet.*, 420.

⁵ 18 *How.*, 77.

⁶ 2 *Id.*, 421.

case of the following term it is not necessary for us to venture. Both Chief Justice Taney and Judge Curtis, in passing upon that case, discuss, incidentally, the police power of the states, but that case added nothing to the subject. It only sufficed to remove for a while the discussion of the police power from the federal Supreme Court, and led to its exemplification elsewhere in the form of ¹ military law.

When the country was taking its citizens by hundreds of thousands and placing them in front of hostile cannon, was destroying lives and property with a rapidity unexampled in history, and popular enthusiasm was urging it on to greater sacrifices of either or both, if only the fabric of the nation might stand, secure and triumphant over all its enemies, there was not much opportunity or disposition to discuss police or question the rights by which government does things.

In the years just prior to the war the contest over prohibitory liquor laws was determined in most of the states along the same lines of upholding state authority where it has since rested. The right to control chartered corporation when necessary became established in accordance with the views of the cases already cited. *Thorpe vs. Rutland, Etc., Ry. Co.* remained, perhaps, the most influential, and is the case usually cited as laying the foundation for the doctrine that the police power cannot be alienated. On the basis reached in these years, 1856, 1857 and 1858, the police power remained until the ordinary machinery of the law commenced its work again in those regions of the country where it had been with other laws "silent amid the shock of arms."

As showing how the development of the police power was related to the growth of constitutionalism and as showing the latter's dependence upon ability to throw aside precedents, the California habeas corpus case, in 1858, ²*ex parte* Newman, with its dissenting opinion by Judge Field, later of the United States Supreme Court, is interesting.

The applicant for a release was an Israelite convicted of a violation of a not very stringent law of California for the "better observance of the Sabbath." He pleaded that his religion consecrated the seventh day, and that the law was in conflict with a provision of the state constitution that all persons should have

¹ Hare's *Am. Con. Law*, 761-784.

² 9 *Cal.*, 503.

“free exercise of religious profession or worship without discrimination or preference.”

The court held that the law in selecting the Christian Sabbath and providing for its observance declared a preference in favor of those professing such religion, and that the law was unconstitutional and void. Judge Field dissented and cited the numerous cases in other states, notably Pennsylvania and Ohio, and the immemorial exercise of such power by legislatures, but in vain.

The majority of the court were in favor of applying the constitution liberally according to its terms and did so. ¹ But it was only a matter of a few years when the conception of the uses and powers of government had become more settled, and had been strengthened by the civil war, that California joined the list of states which interpret their constitutions by common law precedents and uphold the observance of the Sabbath.

When this was done it was on the ground that such requirement was a valid police regulation; that to obtain the full benefit of a day of rest there must be uniformity in its observance, and that it is the right and duty of the state to secure such uniformity. We see in this case again the vindication of public order for its own sake, as before in *Vanderbilt vs. Adams* and *Commonwealth vs. Alger*.

¹ *Ex parte Andrews*, 18 Cal., 678.

CHAPTER VII.

THE CONSTITUTIONAL AMENDMENTS AND THE SLAUGHTER-HOUSE CASES.

As has been suggested there was scarcely any development of our subject during the civil war. Immediately after it sprang up the great questions as to the status of the lately revolted portions of the country and its people. The assertion of authority on the part of the federal government had become habitual and easy, but as soon as legislative action was resumed at the south it was found that it was in the hands of those persons lately in rebellion. The results were unsatisfactory. Indeed, at that time pretty much anything they could have done would have been unsatisfactory to the dominant sentiment at the north, whose real grievance was not so much at their manner of exercising power, as at the fact of their having it to exercise.

¹ "The law derives its contents, not out of the development of the legal idea, but out of the needs of life which call for it. This life is, therefore, the law-making force" (Rechtsbildende Kraft).

The life of the state was to give a new form to the federal constitution, first, by the thirteenth amendment declared adopted in December, 1865, that neither slavery nor involuntary servitude except as a punishment for crime should exist under the jurisdiction of the United States. A few months showed that the return of the seceded states was not going to be the simple thing that President Lincoln had hoped for and President Johnson insisted it must be. Northern public opinion or, perhaps, more accurately northern political sentiment, would not do without what its leaders denominated "a substantial guarantee of the fruits of the war." The reconstruction committee of the two houses of Congress, therefore, while several of the states were still practically under military government, brought forward and procured Congress to propose the fourteenth amendment, which was declared

¹ Stein's *Handbuch der Verwaltungslehre*, S. 41.

ratified by two different proclamations, one of July 20 and one of July 28, 1868. The ratification was by several of the southern states a compliance with a condition imposed by Congress that only upon such ratification would representatives from those states be admitted to the federal legislature.

The amendment is in five sections and much of it has only to do with temporary political conditions that have long gone by, it is hoped never to return. The first section, however, after providing that every person born in the United States and subject to its jurisdiction shall be a citizen both of the United States and the state in which he lives, ordains that

"No state shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States, nor shall any state deprive any person of life, liberty or property without due process of law, nor deny to any person within its jurisdiction the equal protection of the laws."

Sections 2, 3, and 4 are, as suggested, of present importance only to the historian.

The first section and the fifth, which gives Congress power to enforce the article by appropriate legislation, have produced that new development which renders it possible for the editors of the last edition of Bouvier's *Dictionary of the Law* to say truly, under the head of "Police Power," that there has been a vast development of this subject in this century, and most of it in the last thirty years. It was thirty years last July since, under the pressure of refusal of Congressional representation otherwise, five of the southern states ratified this amendment and it became part of the federal constitution. Public attention was strongly directed to it and yet, so long does it take for legal disputes to reach a crisis under our system, that it was not until 1872 that a case involving its construction came before the federal Supreme Court.

When it did so come, the question raised was as far as possible from being connected in any way with the civil convulsions that had, as Dicey says, awakened the American sovereign from a lethargy of more than fifty years, and led to a change in the federal constitution. The question raised had to do simply with the butcher's business in the city of New Orleans. It is not too much to say, however, that the opinion of Judge Miller in the

¹ *Law of the Constitution*, p. 140.

¹ Slaughter-house cases marks as important a turn in the constitutional history of our country as any ever rendered in that court.

In 1869 the legislature of the state of Louisiana chartered the Crescent City Live Stock Landing and Slaughter-house Company, and gave it the exclusive right for twenty-five years of keeping and maintaining in three parishes of that state, embracing 1134 square miles and including the city of New Orleans, landings and yards for live stock, intended for sale or slaughter, and of keeping slaughter-houses for such stock ; and forbade all other persons from maintaining such places in the three parishes. The act prescribed the terms on which the public should have the use of such appliances, and that they must be adequate, and fixed the locality in which they must be placed. Here was a considerable area and a large population affected, and about a thousand men, previously engaged in supplying this population with meat, whose independent business was destroyed.

The state courts upheld the law. The United States Circuit Court for Louisiana held it a violation of the provisions of the fourteenth amendment, and numerous cases came into the federal Supreme Court by proceedings in error from the state court and by appeals from the United States Circuit Court. All were finally settled except three. These were argued in January, 1872, in the absence of Justice Nelson. The eight other justices apparently divided equally as to the cases. At the next term, Justice Nelson having retired and Justice Hunt having taken his place, they were again elaborately argued. Mr. Campbell, who had abandoned the position of judge in this very court to take service on the southern side, appeared now to contest the power of his own state to enact such a law. April 14, 1873, Judge Miller rendered the decision in an opinion which, by a bare majority of one, was that of the court. The dissenters were Chief Justice Chase and Justices Field, Bradley and Swaine.

Judge Miller holds that the providing where and how and by whom such places shall be maintained is a proper exercise of the police power of a state, citing especially *Gibbons vs. Ogden*, New York City *vs.* Miln, and the later cases of the United ² States *vs.* DeWitt, in 1869, and the ³ License Tax cases in 1866 : the former being a holding that the Congress of the United States has no general power of police regulation within the state, and holding

¹ 16 Wall, 18.

² 9 Wall, 41.

³ 5 Wall, 462.

void an act of Congress providing for the punishment of persons mixing and selling certain dangerous inflammable oils ; and the License Tax cases being a holding that Congress has no such power, and that payment of a United States license tax procures no right to carry on in a state a business which that state forbids.

Judge Miller thought the Louisiana statute under consideration well calculated to regulate and bring under proper control the business in question, and he cites the precedents in English legislation and decisions. He finds that the famous case against monopolies, reported by ¹ Coke, was a struggle against the power of the crown, and not against parliamentary legislation, and that if restraints are to be put on such legislation in this country they must be found in state or federal constitutions, and, so far as federal courts are concerned, in the latter.

The claim of the plaintiff was that the Louisiana act involved the creation of an involuntary servitude contrary to the thirteenth amendment ; that it abridged the privileges and immunities of citizens of the United States ; that it denied them the equal protection of the laws, and deprived them of property without due process of law, all in violation of the fourteenth amendment. It was evident that these amendments might be so interpreted as to leave the states the "mere shell of legislative power." The thirteenth amendment, Judge Miller finds, simply intended to abolish negro slavery and all other forms of that evil and place it beyond resurrection. The institution, he said, perished of the bitterness of the conflict itself had caused, and even before President Lincoln's proclamation was at an end almost universally within our army lines. He declines to take the simple and therefore impressive declaration in our fundamental law of this great fact from its purpose and apply it to what are known as servitudes of property in the common law, with which it had no relation.

"The process of restoring to their proper relations with the federal government, and with the other states, those which had sided with the rebellion, undertaken under the proclamation of President Johnson in 1865 and before the assembling of Congress, developed the fact that notwithstanding the formal recognition by those states of the abolition of slavery, the condition of the slave race would, without further protection of the government, be almost as bad as before. Among the first acts of legislation adopted by several of the states in the legislative bodies which

¹ 11 *Ref.*, 85.

claimed to be in their normal relation with the federal government were laws which imposed upon the colored race onerous disabilities and burdens, and curtailed their rights in the pursuit of life, liberty and property to such an extent that their freedom was of little value, while they had lost the protection which they had received from their former owners from motives of self-interest and humanity."

"They were, in some states, forbidden to appear in the towns in any other character than as menial servants. They were required to reside on and cultivate the soil, without the right to purchase or own it. They were excluded from many occupations of gain, and were not permitted to give testimony in the courts in any case where a white man was a party. It was said that their lives were at the mercy of bad men, either because the laws for their protection were insufficient or were not enforced."

"These circumstances, whatever of falsehood or misconception may have been mingled with their presentation, forced upon the statesmen who had conducted the federal government safely through the crisis of the rebellion and who had supposed that by the thirteenth article of amendment they had secured the result of their labors, the conviction that something more was necessary in the way of constitutional protection to the unfortunate race who had suffered so much. They accordingly passed through Congress the proposition for the fourteenth amendment, and they declined to treat as restored to their full participation in the government of the Union the states which had been in insurrection until they ratified that article by a formal vote of their legislative bodies."

Judge Miller then goes on to say that this did not prove sufficient and a few years later the fifteenth amendment—that suffrage should be denied to no one on account of race, color or his previous slavery—was added for the same reason.

"We repeat, then, in the light of this recapitulation of events almost too recent to be called history, but which are familiar to us all, and on the most casual examination of the language of these amendments, no one can fail to be impressed with the one pervading purpose found in them all, lying at the foundation of each and without which none of them would have been even suggested—we mean the freedom of the slave race, the security and firm establishment of their freedom and the protection of the newly made freeman and citizen from the oppressions of those who had formerly exercised unlimited dominion over him. It is true that only in the fifteenth amendment is the negro in terms mentioned; but it is just as true that each of the other articles was addressed to the grievances of that race and designed to remedy them as the fifteenth."

"We do not say that no one else can have this protection. Both the

language and the spirit of these articles are to have their fair and just weight. . . . But what we do say, and what we wish to be understood, is that in any fair and just construction of any section or phrase of these amendments it is necessary to look to the purpose which we have said was the pervading spirit of them all, the evil which they were designed to remedy, and the process of continued addition to the constitution until that purpose was supposed to be accomplished as far as constitutional law can accomplish it."

Discussing the holding in the Dred Scott case that no negro might become a citizen and the first clause of the fourteenth amendment, making all persons born in and subject to the jurisdiction of the United States citizens both of it and of the state of their residence, he says this not only settles the question raised in that case, but recognizes and establishes a distinction between federal and state citizenship. He must reside in a state to be its citizen. He need only be born in its jurisdiction, or naturalized, to be a citizen of the Union. So he thinks the clause

"No state shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States"

has no reference to a state dealing with its own citizens as such. The rights of citizens of the states have no additional protection in that character.¹

"Its sole purpose was to declare to the several states that whatever those rights as you grant or establish them for your own citizens, or as you limit or qualify or impose restrictions on their exercise, the same neither more nor less shall be the measure of the rights of citizens of other states within your jurisdiction."

Of course, this causes the provision under consideration to have the effect of simply extending the protection formerly given to citizens of the several states by clause 1, section 2, article 4 of the constitution, under the new provision also to citizens of the United States.

² "Where it is declared that Congress shall have the power to enforce that article, was it intended to bring within the power of Congress the entire domain of civil rights heretofore belonging exclusively to the states?" If so, "not only are these rights subject to the control of Congress whenever in its discretion any of them are supposed to be abridged, but that body may in advance pass laws limiting and restricting the exercise of the legislative power by the states in their most ordinary and usual func-

¹ 16 Wall., pp. 71-77.

² *Id.*, 78.

tions, as in its judgment it may think proper on all subjects; and still further, such a construction followed by the reversal of the judgments of the state of Louisiana in these cases would constitute this court a perpetual censor upon all legislation by the states on the civil rights of their own citizens, with authority to nullify such as it did not approve as consistent with those rights as they existed at the time of the adoption of this amendment."

"The argument, we admit, is not always the most conclusive which is drawn from the consequences urged against the adoption of a particular construction of an instrument; but when, as in the case before us, these consequences are so serious, so far-reaching and pervading, so great a departure from the structure and spirit of our institution, when the effect is to fetter and degrade the state governments by subjecting them to the control of Congress in the exercise of power, heretofore universally conceded to them, of the most ordinary and fundamental character, and when in fact it radically changes the whole theory of the relations of the state and federal governments to each other and of both these governments to the people, the argument has a force that is irresistible in the absence of language which expresses such a purpose too clearly to admit of any doubt. We are convinced that no such results were intended by the Congress which proposed these amendments nor by the legislatures of the states which ratified them."

Going on, Judge Miller describes some of the "privileges and immunities of citizens of the United States," mentioning the right of passage into and across other states, vindicated in *Crandall vs. Nevada*, and quotes Chief Justice Taney's ²declaration on that subject which has been given before. The right to claim protection on the high seas and in foreign dominions, to assemble and petition for redress of grievance and to the privilege of the writ of habeas corpus are pronounced federal rights guaranteed by the United States constitution.

The claims that the Louisiana law in question deprived of property without due process and that its action was a denial of equal protection of the laws to the butchers are brushed lightly aside. As to the first he only calls attention to the fact that the provision is not a new one in constitutional law, and that such acts as the one in question had never been held to fall within its prohibition in all the litigation over these terms since they were first substantially adopted in Magna Charta. The second he sets aside as not within the purpose of the amendment which had been simply to provide protection for the negroes.

¹ 6 *Wall*, 36.

² *Supra*, p. 56.

In this connection Judge Miller makes his often-quoted prophecy so thoroughly falsified in recent years :

¹ " We doubt very much whether any action of a state not directed by way of discrimination against the negro as a class or on account of their race will ever be held to come within the purview of this provision. It is so clearly a provision for that race and that emergency that a strong case will be necessary for its application to any other."

He does not, however, entirely commit himself to its total inapplicability to any other :

" As it is a state that is to be dealt with and not alone the validity of its laws, we may safely leave that matter until Congress shall have exercised its power, or some case of state oppression by denial of equal justice in its courts shall have claimed a decision at our hands. We find none such in the case before us."

The dissenting opinions are as to both the matters discussed by Judge Miller, both the character of the state law and the extent of legislative ground covered by the prohibitions in the amendment. The power of Congress to legislate, touched upon by Judge Miller, was not really involved in the case, and accordingly the dissenting opinions refer to that, as indeed he does, merely for the light which that clause in the amendment may throw upon the meaning of the one over which the contention is. The dissenting judges take the position that the act itself creates so unreasonable a monopoly as to take it outside of the acknowledged jurisdiction of the legislature to prescribe how within city limits employments of the kind dealt with may be carried on.

The main controversy and point of disagreement, however, is as to the meaning of the clause " abridge the privileges or immunities of citizens of the United States," and what power was given to Congress in authorizing it to legislate to prevent the states from abridging it. Judge Field thought that it secured equal rights to all citizens of a state by virtue of their all being citizens of the United States, and that consequently it forbade any such monopoly as the Louisiana law created. Judge Bradley calls attention to the fact that the power of Parliament to create monopolies cannot be appealed to in this country by way of precedent as against constitutional provisions. He insists that the constitutional provisions in America have the same application to the legislature that

¹ 16 Wall, 81.

the great charter had in Great Britain to the officers of the crown, and that the English theory of the omnipotence of Parliament was never transferred to this country.

The points of controversy in the court seem to have been: 1. Was the privilege of exclusively maintaining slaughter-houses conferred by the law a monopoly violative of common right? 2. Granting that it was such a monopoly, was authority to deal with and rectify the wrong given to the federal courts under the fourteenth amendment, and was state action in this direction and of the character involved forbidden by the fourteenth amendment in cases in which it would have been constitutional before its adoption? Judge Miller and the court answer both questions in the negative, the dissenting judges both in the affirmative.

It would seem that the growth of decisions over these questions starting from this point have tended more and more to confirm the court's determination over the real points decided, while it has overthrown completely not a few of Judge Miller's dicta. That the control of slaughter-houses for a great city is within the police power of the state, and if it solves the difficulty by giving their maintenance wholly to one company, its action may still be defended on that ground, and is not open to the same objection as if it were merely conferring an exclusive trading or manufacturing privilege, unconnected with its police power and not competent for it to bestow, seems certain. The making of "privileges or immunities of citizens of the United States" cover a right to carry on the business of slaughter-houses in any of the great cities would now seem a fanciful stretch of the fourteenth amendment, and the holding that the police powers of the state were not diminished by the fourteenth amendment, but only brought under the supervision of the federal government, and improper uses of it made subject to the jurisdiction of the federal courts, is now firmly established.

It is true that the latter fact has led to an application of the amendment on a far wider scale than Judge Miller anticipated. He himself lived long enough to see the amendment chiefly used not to vindicate the rights of the colored race, but principally for the correction of unjust and unreasonable classifications of citizens and subjects of legislation in what may be called the police laws of the states and to set aside unjust laws of taxation.

It is easy to see that by merely adopting the broad construction of the terms "privileges or immunities of a citizen of the United

States," for which the minority contended, the greater part of what we know by the term police power would have been transferred to the federal government if such construction had been sustained and persisted in. Perhaps it must be admitted that in doing the contrary, in applying the narrow meaning he gave to them, he rendered them practically meaningless. It is certain that the political leaders who had procured the proposal and ratification of the amendment were bitterly disappointed.

His determination, however, is in accordance with the settled habits of the American people, and he could safely calculate that such habits would prevail over any temporary political purpose. The majority of the court determined that the general control of this power should remain in the state, and that determination has been ratified and persisted in ever since by all who love the American government or governments as made by the fathers. If there is a disposition to depart from the strictness of Judge Miller's conservatism, and if in spite of this decision of the court and its success the trend of events has made of the Supreme Court the "tribunal where all questions of individual liberty and property rights are now finally determined," it is because in the distinct grants of power, outside of the phrase "privileges or immunities of citizens of the United States," means have been found to curb in nearly all directions state legislation. The change in that respect has gone and is going quite rapidly enough. The discovery that on our leading railways the traffic that stops within the state of its starting is but a trifle in comparison with the total carriage shows how thoroughly we have become,

"for all the great purposes for which the federal government is formed, one people, all citizens of the United States."

It is to be said, too, that the extent of the transfer to the United States courts of the function of defending these individual rights has proved to be the measure of the extent to which that court has recognized the necessity of upholding the powers of the states. The Supreme Court, at all events, cannot be charged with forgetting the truth of Madison's ² remark, that if the states were to be destroyed the general government would find it necessary to restore them. To be sure, it had an object-lesson as to this after the civil war.

¹ Guthrie's *14th Amdt.*, Preface

² *Federalist*, No. 14, Lodge ed., 79.

We shall see in following the decisions of our federal Supreme Court in the exercise of its negative upon state legislation given it by the fourteenth amendment, that it has not been niggardly in allowing room for the police power. With the consciousness of unity and of common national interests ever growing stronger and at the same time with ever-increasing knowledge of the endless diversity of local requirements, it could not be otherwise. We shall find the authority of the states generally maintained where not palpably in violation of the inhibitions of the fourteenth amendment, and a considerable latitude of indulgence to what seem almost plain cases of pretense of police objects when the real purpose was the effecting of some discrimination against interests or persons.

The decisions of the states do not become unimportant. For one thing, if they hold a state law bad, the federal inhibition being only on states, there is no power of review, and the decision is final so far as that act is concerned.

Whatever trimming the state courts exercise upon the acts of their own legislatures remains lopped off. Of what is left, the federal Supreme Court takes cognizance if it is claimed to violate the provisions of the federal constitution. So, through the influence largely of the fourteenth amendment, partly also of the increasing importance of the commerce clause in the constitution as commerce more and more disregards state lines, the federal Supreme Court has become the final tribunal for this country where the claims of individual liberty and of property and commercial rights are heard.

Starting, as we have seen, with the Slaughter-house cases, the whole field of the police power, as it has been developed in the twenty-six years since by state legislation, has been reviewed. So the national struggle with slavery and sectionalism, that forced the term "police power" into general use, finally made of the federal Supreme Court, where it originated, the chief field for its exploitation. Truly, the "active life of the state is the law-making power." It is the glory of Judge Miller, as it was of Redfield and Shaw and Chief Justice Marshall before him, that he recognized clearly both the needs of such life in the way of fresh applications of law and the limits of such need.

CHAPTER VIII

THE POLICE POWER IN THE FEDERAL SUPREME COURT.

Notwithstanding the new jurisdiction conferred by the fourteenth amendment, the next case in the federal Supreme Court on this subject, after the Slaughter-house cases, went back to the old contention between the police power and the interstate commerce clause. This was in ¹Railroad Company *vs.* Fuller. A statute of the state of Iowa required all railroads operating in that state annually in the month of September to fix rates of freight and fares for passengers and post them up on October 1 in each depot and station, and fixed a penalty for charging more than the rates so posted. An act of Congress of 1866 made all railroads carrying goods or passengers post roads and authorized them to do such business and receive pay for it. Fuller having shipped some freight from Chicago, Ill., to Marshalltown, Iowa, and being charged, as he asserted, a higher rate of freight than that posted, sued to recover back the difference.

The railroad among its defenses claimed that the Iowa statute was unconstitutional and an infringement of the exclusive power of Congress to regulate commerce between the states. The long warfare between the states and the railroads in the federal courts thus began, unless the case of the tax on railroad gross receipts, decided in 1872, be considered to have commenced it. The Supreme Court of the State of Iowa held the statute valid as a measure of police and legislation appropriate to the duties of common carriers. The railroad company seems to have based its claim to exemption from such act upon the fact that Congress had legislated on the subject as above indicated. Otherwise, they say, the act in question would be valid under the rule in the familiar cases of ²*ex parte* McNiel, ³*Wilson vs. Blackbird Creek Marsh Company*, and ⁴*Gilman vs. City of Philadelphia*, and others.

Judge Swayne for the court held in this case, as in that of the

¹ 17 Wall, 560 (1873).

² 13 Wall, 236.

³ 2 Pet., 245.

⁴ 3 Wall, 713.

pilot dues in *ex parte* McNiel, that the statute was a valid exercise of the police power of the state :

"It is not in the sense of the constitution in any wise a regulation of commerce. It is a police regulation, and as such forms a portion of the 'immense mass of legislation which embraces everything within the territory of the state and not surrendered to the general government,' all which can be most advantageously exercised by the states themselves."

He goes over the former cases that divides the power of our "complex" government into: 1st, Those of the states; 2d, those of the national government; 3d, the concurrent ones; and 4th, those which the states may exercise till Congress assumes them.

He includes transportation in commerce, and says:

"The authority to regulate commerce lodged by the constitution in Congress is in part within the last division of those powers."

In this way the regulation of interstate railways by state legislatures was distinctly countenanced and on the ground of a concurrent power, which must, however, always be called "police power" when exercised by the state, and "commercial power" or "power to regulate commerce" when employed by Congress.

In the same year of 1873 a controversy which we have seen passed upon by the states with somewhat varying results was brought by the fourteenth amendment into the federal Supreme Court, to remain there in some form even to this day—the dispute over prohibitory liquor laws.

In ¹ *Bartemeyer vs. Iowa* the plaintiff had been acquitted before a justice of the peace in 1870 of selling intoxicating liquors. The state appealed the case, and in the circuit court the defendant admitted the sale, but said he had committed no crime, because he was owner of the liquor prior to the day when the act was adopted forbidding the sale, and was a citizen of the United States; and on this plea, without evidence and waiving a jury, the case was submitted to the court and he was found guilty and fined twenty dollars. The Supreme Court of Iowa affirmed the judgment, and the case was taken to Washington.

Judge Miller remarks in passing upon it that prior to the fourteenth amendment there would have been no federal question in it to bring before that court. It was presented as a violation of that amendment in depriving the plaintiff in error of privileges and im-

¹ 18 Wall, 129 (1873).

munities of a citizen of the United States and of his property without due process of law. Judge Miller adheres to his views as to what are privileges and immunities of the United States citizenship expressed in the Slaughter-house cases. The other question, as to a deprivation of property by a too severe operation of prohibitory legislation upon existing articles, he declines to consider in connection with this case, as he finds that the preceding law of Iowa which the act in question superseded was almost if not quite as severe. He indicates, however, a disposition to follow *Wynehamer vs. The People* in that respect, citing that case with approval.

Judge Field and Judge Bradley each filed a concurring opinion distinguishing the case from the Slaughter-house cases. They take the opportunity once more to argue against the conclusion in the latter cases. They affirm that the claim that the Louisiana law was a police regulation was a mere pretext, and that its real object was to confer an unlawful special privilege, and once more that the granting of such a privilege would be a taking away of the privileges and immunities of citizens of the United States from those who suffered by it. The evident reluctance of the court to pass directly upon the question whether total prohibition would be a deprivation of property in existing liquors without due process of law could not fail to bring that question again before the court, and did not, as we shall see.

In 1874, too, the case of ¹*Minor vs. Happersett*, again involving the construction of the fourteenth amendment, was passed upon. Mrs. Virginia Minor, a free white citizen of Missouri, applied to Happersett, a registrar of voters in that state, to be allowed to register as a voter at the presidential election of 1872, and was refused. She brought suit against him for such refusal, and judgment on demurrer to her claim was given in favor of Happersett. This was affirmed by the Missouri court of last resort, and the case taken by her to the federal Supreme Court, as involving a denial of privileges and immunities of a citizen of the United States.

Chief Justice Chase argued from various statutes that it must be admitted that women were citizens and always had been, and if the right of suffrage was one of the privileges of a citizen of the United States, they must be allowed to have it under the fourteenth amendment. He declined, however, to admit this. He

¹21 Wall, 162.

thinks the constitution leaves the qualification of electors to the states; that Congress had never attempted to act in the matter and the states had. He concludes that suffrage was not bestowed on women by the fourteenth amendment, and adopting the reasoning of Judge Miller in the Slaughter-house cases, from which he at the time dissented, he observes:

"The amendment did not add to the privileges and immunities of the citizen; it simply furnished an additional guarantee for such as he already had."

The fourteenth amendment had even before this been sought to be used in the case of ¹Bradwell *vs.* The State to confer on a woman the right to practice law in defiance of the state statute of Illinois.

In this year of 1874 came also the case of ²Railroad Company *vs.* Maryland. In granting the franchise for constructing the branch of the Baltimore & Ohio Railroad from Baltimore to Washington the legislature authorized it to charge not more than \$2.50 for passage the whole way, and shorter distances in proportion, with a requirement that one-fifth of the amount received for passenger fares should be paid to the state. This was claimed by the representatives of the road to be a tax on interstate travel. Probably the contention was not wholly in the interest of the traveler, and so the court viewed it.

Judge Bradley passing upon the case says:

"When the constitution was adopted transportation by land was wholly performed on common roads and in vehicles drawn by animal power. No one imagined at that day that the roads and bridges of the country, except when the latter crossed navigable streams, were not entirely subject to state regulation and control. They were all made either by the states or under their authority. The power of the state to impose or authorize such tolls as it saw fit was unquestioned. No one then supposed that the wagons of the country which were the vehicles of its commerce were subject to national regulation."

"The movements of persons and merchandise, so long as it was as free to one person as to another, to the citizens of other states as to the citizens of the state in which it was performed was not regarded as unconstitutionally restricted and trammelled by tolls exacted on bridges or turnpikes, whether belonging to the states or private persons; and when in process of time canals were constructed, no amount of tolls which were

¹ 16 Wall, 130.

² 21 Wall, 470.

exacted thereon by the state or the companies that owned them was ever regarded as an infringement of the constitution. When constructed by the state itself they might be the source of revenue largely exceeding the outlay, without exciting even the question of constitutionality."

"So when, by the improvements and discoveries of mechanical science, railroads came to be built and furnished with all the apparatus of all-absorbing transportation, no one imagined that the state, if the owner of the works, might not exact any amount whatever of toll or fare for freight, or authorize its citizens or corporations, if owners, to do the same. Had the state built the road in question, it might to this day unchallenged and unchallengeable have charged \$2.50 for carrying passengers between Baltimore and Washington. So might the railroad company under authority from the state if it saw fit do so. These are positions which must be conceded; no one has ever doubted them."

He finds thus an unlimited right of the state to charge or authorize others to charge for transportation from the simple fact that the railroads are its own work, or the work of others acting by its authority :

"It has discretion as to the amount of that compensation; that discretion is a legislative, a sovereign discretion, and in its very nature is unrestricted and uncontrolled."

From this first utterance of the court as to the state's rights over transportation rates, repeated several times in the course of the opinion, there was no dissent.

Judge Miller dissented briefly on the ground that the charge which the court was finding legal was a special exaction for the benefit of the state of Maryland for the privilege of bringing passengers to the national capital, a right which the constitution intended should be untrammelled in accordance with the principles announced by him in the case of *Crandall vs. Nevada*. So to Judge Bradley's main position, thus strenuously declared in this first case involving the question, that the power of the state over rates of transportation within its boundaries was unlimited and sovereign, there was at this time no dissent.

Subsequently, as we shall see, this doctrine was greatly modified.

It may be noted that this whole question of rates of transportation was not brought into the state Supreme Court by the granger agitation, as is sometimes claimed and perhaps generally believed. This case of *Railroad vs. Maryland* and the preceding one of *Rail-*

¹ 6 Wall, 35.

road Company *vs.* Fuller were in each case an attack upon a law of many years' standing and one making what the courts styled a "reasonable regulation." Judge Bradley held until his death to the position that the establishing of rates for railroad transportation was not a regulation of interstate commerce, even as applied to traffic going beyond the state, and that the amounts of such rates was a wholly legislative question with which courts had nothing to do. The maintenance of such a position together with the one that subsequently became established, that the roads must do business and accommodate the public or forfeit their franchises and have their lines condemned, seems very difficult, and Judge Bradley and those whom we shall find holding with him in this matter seem never to have offered any reconciliation of the two.

In 1875 the case of ¹ Welton *vs.* State of Missouri raised the question of the validity of a statute which provided that any one selling or handling anything

"not the produce of this state, other than books, charts, maps and stationery,"

should be deemed a peddler and required to pay a license, no license being required of those selling produce of the state. A sewing-machine seller named Welton, whose machines were made outside of the state, was fined \$50, and after his case had been affirmed by the state Supreme Court, appealed it to the one at Washington.

It was attempted to sustain the law by the argument that the state could tax its own citizens in any way it pleased, and could put aliens on an equality by a like tax on them. It was also claimed to be a mere regulating or police license on a special occupation. Judge Field in giving the opinion of the court declined to regard as serious the claim of police power. He regarded the law as simply an attempt to derive a revenue from foreign goods and quite unconstitutional.

² "It would be premature to state any rule, which would attempt to be universal in its application, to determine when the commercial power of the government of a commodity has ceased and the power of the state has commenced. It is sufficient to hold now that the commercial power continues until the commodity has ceased to be the subject of discriminating legislation by reason of its foreign character; that power protects

¹ 91 U. S., 275.

² P. 282.

it even after it has entered the state from any burdens by reason of its foreign origin. The act of Missouri encroaches upon this power, and is therefore, in our judgment, unconstitutional and void."

During this year also, in the ¹*United States vs. Reese*, the court construed the fifteenth amendment and limited again the power of Congress to legislate in matters of police within the states. It held an act of Congress fixing a punishment for hindering or preventing voting, which was intended to enforce that amendment, unconstitutional, because the lawmakers had not distinguished between discrimination on account of race and discrimination for other reasons, and had assumed to act in reference to offenses against freedom of the national elections generally. Congress was held to have power under this amendment only to act with reference to race discriminations.

The decision is interesting as showing how slow the courts were to turn power over to Congress which had belonged to the states and how different the view of the effect of the constitutional amendments in the Supreme Court from that in the Congress where they originated. The dissenting opinions of Justices Clifford and Hunt are especially interesting as showing how easily the act could be so construed as to remove the objection; and, indeed, the decision is open to criticism as neglecting the general principle that laws are to be pronounced unconstitutional by the courts, after they have been duly adopted by the legislative body, only in plain cases.

Still in the same year, in ²*Henderson vs. Mayor of New York*, the old question of the Passenger cases came up again; and to show how the amendments to the constitution were bringing back all the old questions with such new features as legal ingenuity could throw into them, the question now arose on an enactment of the state of New York dating as far back as 1849 and apparently passed to meet the objections to the law which was under consideration and held bad in the Passenger cases.

The law provided that every carrier of passengers should, for every one landed, either provide a bond in the sum of \$300 to the state of New York against his becoming a public charge within four years or else commute such bond by a cash payment of \$1.50, 50 cents to be for the benefit of other counties in the state, and the remainder to be expended by the commissioners of immigration for certain purposes in New York city.

¹ 92 U. S., 214 (1875).

² 92 U. S., 260 (1875).

New York *vs.* Miln and the Passenger cases are held to show that a state has police authority over incoming passengers, but the exaction of a sum of money as a condition of their entry is an invasion of federal authority. Judge Miller has no difficulty in concluding that the requirement of a bond for the support of the immigrant from a carrier is a mere pretext, when accompanied with the provision for a commutation at so trivial a sum. The real purpose he finds is to exact the \$1.50; under the decision in the Passenger cases it would be void, but he declines to rest on that judgment, given, as he says, by a bare majority of a divided court, and with much disagreement among the concurring majority as to the grounds of their action.

He thinks that the carrying of passengers is clearly commerce, both as defined in *Gibbons vs. Ogden* and as shown by the vast development of traffic since the date of that decision. He concludes that in view especially of the latter fact the subject of introducing alien passengers requires a uniform rule throughout the country, and therefore the control of that matter must be held to have been given to Congress. He declines to recognize any peculiar police power on the subject, and declares that nothing is gained by calling the power under which the act is passed by that name. He proceeds to show that very many statutes may be justified under any one of several so-called powers of the state, and that no matter to what power of a state its action may be referred, that action is void if it invade the domain of legislation belonging exclusively to the United States. Thus while throwing down the boundaries of any exclusive police power in the state, he, nevertheless, finds some "exclusive" powers in the United States.

The weakness of any theory of an essential difference in nature between the powers of government has seldom been so displayed as in the opinion of this case. He declines to say whether or how far a state may protect itself against actual pauperism, disease, and criminality among persons arriving from foreign countries. That there is any distinction in nature and essential quality between force of government applied to obtain from the master of a vessel \$1.50 for each passenger and the same force applied to compel the same man to give information as to the number, character and former domicile of such passengers, would seem hard to establish.

Evidently the court that is applying such a distinction must, as Judge Miller says, "look to the effect of a statute for the test of its

constitutionality." That would seem to be equivalent to saying that the difference is not in the kind of power used but in the object to which it is applied and the purpose of its application. And the distinction between police power and taxing or commercial power has still to be maintained when the ostensible purpose of the collection of the \$1.50 is merely to provide a guarantee fund against pauperism just as the requiring of the information is to guard against the same trouble.

The immediately following case of ¹*Chy Lung vs. Freeman* was found by Judge Miller to differ from the last one in only two important particulars. The plaintiff in error was a prisoner held in default of a bond of \$500 to indemnify the counties and cities of California against liability for her support within two years, and the statute of California, unlike that of New York, did not require a bond for each passenger but only for certain specified classes of persons among whom were lewd women. To this class it was claimed the plaintiff belonged.

Judge Miller ²again looks "to the effect of a statute for the test of its constitutionality." He finds that

"if citizens of our own government were treated by any foreign nation as subjects of the Emperor of China have been actually treated under this law, no administration could withstand the call for a demand on such government for redress; or if this plaintiff and her twenty companions had been subjects of Great Britain, can any one doubt that this matter would have been the subject of international inquiry, if not of a direct claim of redress? Upon whom would such a claim be made? Not upon the state of California, for by our constitution she can hold no exterior relations with other nations. It would be made upon the government of the United States. If that government should get into a difficulty which would lead to war, or to suspension of intercourse, would California alone suffer or all the Union? If we should conclude that a pecuniary indemnity was proper as a satisfaction for the injury, would California pay it to the federal government?" . . . "The passage of laws which concern the admission of citizens and subjects of foreign nations to our shores belongs to Congress and not to the states. It has the power to regulate commerce with foreign nations. The responsibility for the character of the regulation and for the manner of their execution belongs solely to the national government."

He does not deny a right of the state to protect itself, "in the

¹ 92 U. S., 276 (1875).

² P. 279.

absence of legislation by Congress on the subject," against pauperism and criminality from abroad.

"Such a right can only arise from a vital necessity for its exercise and cannot be carried beyond the scope of that necessity. When a state statute limited to provisions necessary and appropriate to that subject alone shall in a proper controversy come before us, it will be time enough to decide that question."

He finds the California statute, in the stretch of authority given to the commissioner of immigration and in its requirement of a bond or a money commutation, unnecessary, undesirable, and therefore unconstitutional.

Here we have the power to regulate foreign commerce and the foreign relations of the Union coming in collision with an attempt of California to regulate the admission of undesirable persons. The court finds (1) that the national authority is paramount; then it finds that such authority is exclusive; then it admits that there might an emergency arise which would warrant the state in taking action affecting these subjects, but finds that the action of the state in this instance is not of a kind "necessary or proper for this purpose," and the action of the state court is reversed and the law wiped out. It cannot be denied that as Judge Miller says, both in this case and in that of *Henderson vs. New York*, that the same act may often be equally well attributed to any of several powers of government. This, however, seems not to discourage continual efforts to draw important consequences from a supposed distinction between the essential natures of such powers.

In this same year, 1875, the well-known case of ¹ *United States vs. Cruikshank* served, like that of *United States vs. Reese*, at once to emphasize the doctrines of the Slaughter-house cases and to indicate how far those cases were from answering the expectations of those who framed the fourteenth amendment and the legislation connected with it, the civil rights and enforcement acts.

The defendants were charged in thirty-two counts with conspiracy under the sixth section of the enforcement act: (1) Banding together to intimidate two citizens of the United States persons of color with intent

"to hinder and prevent them in their exercise and enjoyment of their lawful right and privilege to peaceably assemble with each other and other citizens of the United States for a peaceful and lawful purpose;"

¹ 98 U. S., 542.

(2) to prevent the same persons bearing arms ; (3) to deprive such persons of their liberty without due process of law ; (4) to deprive them of the equal benefit of all laws and proceedings for the security of persons and property of white citizens ; (5) to deprive them of privileges and immunities secured to them as citizens of the United States and of Louisiana on account of their color ; (6) to hinder and prevent their enjoyment of the right of suffrage ; (7) to put in great fear and oppress such persons for having exercised the right of suffrage, and (8) to prevent and hinder such persons in the exercise and enjoyment of all the several rights and privileges guaranteed them by the institutions and laws of the United States.

Then there were eight counts that charged them with combining, conspiring and confederating, instead of banding together as in the first eight ; then there were sixteen counts charging similar offenses in other forms. Three defendants were found guilty under these first sixteen counts and not guilty under the other sixteen. They moved for an arrest of judgment on the ground of the unconstitutionality of the statutes on which the indictment was based and the insufficiency of the indictment itself. There was a disagreement of the judges of the Circuit Court, the presiding judge being of the opinion that judgment should be arrested, and on a certificate of such division of opinion the case came up for hearing in the Supreme Court.

The section of the statute on which the prosecution was based provided that if two or more persons should "band or conspire" together, or go on the highway or the premises of another, with intent to violate the act or to oppress or intimidate any citizen so as to prevent or hinder his free exercise or enjoyment of any right or privilege granted or secured to him by the constitution or laws of the United States, or do the same because of his having exercised such right, such persons should be guilty of felony and be fined not to exceed \$5000, or imprisoned not longer than ten years, or both, and be ineligible to any office under the federal government.

Chief Justice Waite in deciding the case says :

"To bring this case under the operation of the statute, it must appear that the right, the enjoyment of which the conspirators sought to prevent, was granted or secured by the laws of the constitution of the United States. If it does not so appear the criminal matter charged has not been made indictable by any act of Congress."

He proceeds to say that there is a United States government and there are state governments; that each one is distinct and has citizens of its own; that the same person may be a citizen of the United States and of a state, but his rights under each will be distinct.

"The people resident within any state are subject to two governments, one state and the other national, but there need be no conflict between the two. The powers which one possesses the other does not. They are established for different purposes and have separate jurisdictions. Together they make one whole and furnish the people of the United States with complete government, ample for the protection of all their rights at home and abroad."

He admits that the same person may be amenable to both for the same act, and instances a resistance to a United States officer as violating at once the peace of the state and the national law, and a counterfeiting of United States coin and passing it as exposing the counterfeiter to a penalty under United States law and to prosecution for fraud within a state.

"This does not, however, necessarily imply that the two governments possess powers in common or bring them into conflict with each other."

He goes again over the ancient ground of nothing belonging to the national government except powers granted by the constitution and that everything not so granted is left to state protection. The right to assemble peaceably is found to depend upon state protection, so the first and ninth counts of the indictment go out. The right to bear arms is indeed guaranteed against infringement in the second amendment to the federal constitution, but the amendment only restricted federal powers and did not affect the states, and as against a state or its citizens this right has no guarantee in the federal constitution, and so the second and tenth counts were dismissed.

The third and eleventh counts for conspiring to deprive citizens of life and liberty without due process of law are held equally bad. The fourteenth amendment, to be sure, says that no state shall make or enforce a law doing this, but the duty of protecting citizen against citizen within a state rests with the state. The same is true as to the equal protection of the law, of which an intent to deprive is charged in the fourth and twelfth counts. The constitutional prohibition lies only against state action in that direction.

The sixth and fourteenth counts as to conspiring to prevent enjoyment of the right of suffrage are held bad because the constitution confers no right of suffrage as has been seen in the case of *Minor vs. Happersett* ; it only guarantees against discrimination on account of color or previous servitude, and this is not alleged in the counts. The seventh and fifteenth counts are held no better for they merely allege the putting in fear and oppression of the same persons on account of having exercised the right to vote and without stating facts of race discrimination to bring the case within the terms of the constitution.

There remained the fifth and thirteenth, the eighth and sixteenth counts under which also the defendants had been found guilty. The fifth and thirteenth alleged a conspiracy on account of their African race and color to deprive the persons named of their several rights and privileges and immunities granted and secured to them by the constitution of the United States as citizens of the country and of the state of Louisiana. The eighth and sixteenth embraced substantially the same thing without the clause as to African descent and race and color. These counts are held to be too vague to inform the court or the accused what specific rights were claimed to be invaded, or by what specific acts the invasion was accomplished, and from them it could not be determined whether or not there had been a specific violation of law in any constitutional particular. The judgment was therefore arrested and the defendants discharged.

The concurring opinion of Judge Clifford agrees in the conclusion but would rest it upon other defects in the indictment, and more particularly upon its indefiniteness. His view of the constitution and of the privileges or immunities of a citizen of the United States guaranteed by it apparently does not differ materially from that announced by the court through Chief Justice Waite. These decisions together with the Slaughter-house cases have been sometimes called reactionary decisions of the court, and have sometimes been thought, as was charged at the time, to have thrown away the results of the war ; that they prevented at least some of the results of the constitutional amendments which were confidently expected by the Congresses which proposed them and which passed the civil rights and enforcement acts is plain. Practically all the legislation of Congress on the subject was thwarted by the narrow construction of the amendments adhered to by the court.

That the construction of the court was that of the people at large

is shown by the fact that no new attempts were made toward the adoption of amendments that should give positive as well as negative power to the general government over matters of local police. The conclusions of the court in that respect were never changed, though, as was to be expected, when the court finally came to decide upon what is in the amendments, rather than what is not, more was found in them than their supporters in the first disappointment thought was left after these decisions. The court, after first holding that the amendments had caused no sweeping change in the relations of the state and federal governments, proceeded to develop the meaning of them with results that we shall presently see.

CHAPTER IX.

REGULATING THE USE OF PROPERTY NOT A FORBIDDEN TAKING.

The principles suggested by the cases of *Railroad Company vs. Fuller* and *Railroad Company vs. Maryland* were now to be extended preparatory to a later abridgment. ¹ In *Munn vs. Illinois* began another judicial contest inside the federal Supreme Court, this time over the employment of the police power of the state to regulate charges in "employments charged with a public interest." The doctrines of *Railroad Company vs. Fuller* and *Railroad Company vs. Maryland*, when they commenced to be extended and their consequences perceived, began at once to be questioned by members of the court, although there had been no dissent in either of those cases.

The State of Illinois has a constitution expressly declaring all elevators and storehouses where grain is stored for a compensation public warehouses, and requiring the legislature to pass laws for the inspection of grain for the protection of producers, receivers and shippers of grain and produce. In 1871 a law was enacted to carry this constitutional provision into effect. This law among other things required the proprietor of every such public warehouse to obtain a license and provided a penalty of \$100 for each day's business done without a license. It was also provided that no such public warehouse should charge for the storage of grain more than a certain fixed price.

In 1872 an action was commenced against *Munn & Scott*, of Chicago, the managers of a large elevator there, charging that they unlawfully transacted such business without procuring the license required. It was agreed at the trial that *Munn & Scott* had complied with the law in every respect but two: that they had taken out no license and given no bond, as was required, and that they had also continued to charge rates of storage in use before the law was adopted and greater than the ones fixed by the law. They were found guilty and fined. This judgment was affirmed by the

¹ 94 U. S., 113 (1876).

Supreme Court of the state, and the defendants took the case by error to the Supreme Court of the United States.

They asserted that so much of the statute as attempted to require the obtaining of license and giving of bond, and to fix a fine if this were not done, and to establish maximum rates of storage was unconstitutional and void; that they were an infringement of sections 8 and 9 of article 1 of the federal constitution giving Congress the power to regulate commerce between the states and requiring that no preference be given to the ports of any state, the elevator being confessedly an instrument of interstate commerce. It was also claimed that the fourteenth amendment, in declaring that no one should be deprived of property without due process of law, prevented any such reduction by statute of rates of storage which the elevator had collected for many years.

In opposition to this assertion of rights in the elevator company the police power of the state was invoked, and all the cases before mentioned in this discussion cited and a great many more. The question considered by the court is stated by Chief Justice Waite in the following terms:

¹ "The question to be determined is whether the general assembly of Illinois can, under the limitations upon the legislative power of the states imposed by the constitution of the United States, fix by law the maximum of charges for the storage of grain in warehouses at Chicago, and other places in the state having not less than 100,000 inhabitants, in which grain is stored in bulk and the grain of different owners mixed together in such a manner that the identity of different lots cannot be preserved."

He considers, first, the objection that the law is a violation of the fourteenth amendment, and as this provision, while new in the constitution of the United States is as old as Magna Charta and has formed a part of every state constitution adopted in America, he finds plenty of precedents as to its application. He declares the state legislatures now possess all the supremacy of the Parliament of Great Britain, except so far as they are limited by having granted out of such supremacy the power held by the federal government, and so far as certain powers are, by the terms of the state constitutions, retained by the people. He has no difficulty in showing that the power to regulate charges for various quasi-public employments has always been asserted by both English and Ameri-

¹ 94 U. S., 123.

can governments and that such regulations had never been deemed a deprivation of the property involved within the meaning of this provision of Magna Charta and of the state constitutions.

The claim that the owner is entitled to a reasonable compensation for the use of his property, and that the question of what is a reasonable return is a judicial and not a legislative question, is met by an appeal to precedent again ; and again it is answered that it had been uniformly treated as belonging to the legislature. The chief justice admits that the power is liable to abuse, but declares the remedy for such abuse must be sought at the polls and not in the courts.

The claim that the legislation was an infringement on the power of Congress to regulate interstate and foreign commerce is disposed of by saying that the elevator was not exclusively an instrument of such commerce ; that it must be considered as subject to the local government in whose jurisdiction it stood ; and, unless the requirements of such local government clashed with congressional legislation as to commerce, any such requirements made in good faith, in exercise of the proper powers of local government, must be upheld, even though they indirectly affected interstate and foreign commerce.

Justices Field and Strong dissented. They thought the business of storing grain a purely private one. As Judge Field says in the opinion :

"The public are interested only as they are interested in the storage of other products of the soil or of manufacture."

They thought the doctrine of the court might fairly be construed to mean that whenever a business was useful and therefore important to the public its compensation could be regulated :

"The doctrine of the state court, that no one is deprived of his property within the meaning of the constitutional inhibition so long as he retains its title and possession, and the doctrine of this court, that whenever one's property is used in such a manner as to affect the public at large it becomes by that fact clothed with a public interest and ceases to be *juris privati* only, appear to me to destroy for all useful purposes the efficacy of the constitutional guaranty."

Perhaps, in all the decisions which have been rendered upon this subject, the nature of the contest between the police power and the terms of the constitutions has never been brought out more

distinctly than in these two opinions. It would be hard to find any place where it is more distinctly to be seen that the real question is whether the actual guarantees for the enjoyment of individual and property rights and the limits to such enjoyment shall be sought in common-law precedents or shall be found in the terms of our written constitutions.

It is to be said that in finding judicial decisions to support their assertion that to impair the use of property is to deprive the owner of it the dissenting judges were not very successful. The truth is, as Mr. Sedgwick quite clearly pointed out in his work on ¹ *The Construction of Statutory and Constitutional Law* in 1857, interferences with the use of property for reasons of police have not been held to be a taking, nor to be subject to the inhibition of Magna Charta or that of state constitutions. Nor are they very fortunate in trying to establish a distinction between the effects of this law and others, as, for instance, usury laws. They found themselves compelled to resort to what they themselves, as judges, would unsparingly condemn in advocates. They make use of the general expressions in favor of the sacredness of property and personal rights to be found employed by the courts in the discussion of cases of a quite different character from that they had under consideration.

The real distinction, more or less consciously underlying all the precedents, that legislation of this character is to be deemed good and constitutional if it is a real exercise of a true function of the state in providing for the general welfare and in guarding against a real overcharging of those who are not in a position to protect themselves, and is void if merely a more or less complete confiscation, seeking to disguise itself as such regulation, did not yet clearly develop itself.

The next case, the ² *Chicago, Burlington & Quincy Railroad Co. vs. Iowa*, passed upon at the same session in an opinion also by Chief Justice Waite, applies the same reasoning in all respects and very briefly to the Iowa law establishing maximum rates of charge for transporting passengers and freight.

This law, also, was resisted as being an impairment of the contract in the charter of the road as well as for all the reasons urged in *Munn vs. Illinois*.

¹ P. 435, Pomeroy's ed.

² 94 U. S., 155.

The objection that the law infringed upon the power of Congress over interstate commerce was especially urged. The chief justice found no difficulty with the charter provision. No immunity from such legislation was expressly given, and it could not be, constructively. The claim that the company was deprived of property without due process of law and that the legislation infringes on the exclusive domain of Congress, inasmuch as the railroad was an instrument of interstate commerce, was set aside for the same reasons as in the preceding case :

"This road, like the warehouse in that case, is situated within the limits of a single state. Its business is carried on there and its regulation a matter of domestic concern. It is employed in state as well as interstate commerce, and, till Congress acts, the state must be permitted to adopt such rules and regulations as may be necessary for the promotion of the general welfare of the people within its own jurisdiction, even though in so doing those without may be indirectly affected."

Judges Field and Strong again dissented, but gave no opinion.

The third of the Granger cases at this term was ¹ *Peck vs. The Chicago & Northwestern Railway Co.* This case held that the doctrine of the former two and the statutes of Wisconsin fixing the rates of transportation must apply to the railway company, although it was formed out of the consolidation of certain Wisconsin, railroad corporations with Illinois corporations, on the terms of compliance with Wisconsin laws when operating in Wisconsin. It was held that this fact of consolidation with a corporation of another state could not deprive the state of its right of control.

In the case of the ² *Winona & St. Peter Railroad Co. vs. Blake* it was held that the company having accepted its incorporation as a common carrier was bound to carry freight when offered for the lawful compensation fixed by the state. In ³ *Chicago, Milwaukee & St. Paul Railroad Co. vs. Ackley* it was held that the company could not recover more than the maximum rate allowed by statute, even upon showing that such additional charge was reasonable and inherently just.

In ⁴ *Stone vs. Wisconsin* a judgment of the state court that the provisions of the state constitution of 1848 under which Wisconsin was admitted to the Union, that

¹ 94 U. S., 164 (1876).

² *Id.*, 180 (1876).

³ 94 U. S., 179.

⁴ *Id.*, 181 (1876).

"all laws creating corportations may be altered or repealed by the legislature at any time after their passage,"

applied to a statute passed before such constitution, but whose provisions were not accepted until after such passage was affirmed.

This was the last of these Granger cases and Judge Field, with whom concurred Judge Strong, filed a dissenting opinion, that by the result of these cases the railroad companies were "practically placed at the mercy of the legislature of every state." They argued against the result as destroying the value of bonds and mortgages and impairing the obligations of contract, but again without suggesting the true limit between spoliation and regulation. In fact, no question of such distinction was raised in these cases. The plaintiff roads were resisting all regulation of rates.

That much of the alarm of corporate capital at this extension or, at least, assertion of police power in the states, was due to these dissenting opinions, which, be it remarked, found no fault with the justice of the result reached in these individual instances, seems clear. In truth, the cases were not instances of oppression appealed against by the roads. It is impossible not to recognize at once, in their varied character, in the different roads involved, the questions raised and the manner of objections, that they were brought by the great lines of the Northwest under a more or less conscious prearrangement, not by way of resisting actual oppression, but to procure from the Supreme Court of the United States an expression limiting the powers of the state legislatures and setting these great interests substantially above such powers.

Actual hardship was in no case seriously attempted to be shown. It appears clearly enough that to be required to show any hardship was deemed a most serious one by the corporate interests involved. That the court under such circumstances asserted in emphatic terms the authority of the legislature was a great public service. If it did so somewhat too strongly it is to be remembered that the time to assert limiting doctrines is when the legislative authority has been established and is really abused or threatened to be.

The following year, in ¹*Shields vs. Ohio*, the right of the state to prescribe a maximum rate came again before the court under a slightly different phase. Two companies had consolidated, one of which by its charter was exempt from such legislation, and one not.

¹ 95 U. S., 319 (1877).

The question was whether the consolidated company was subject to such requirements. The controversy arose upon that part of the line which by the terms of the original charter was not subject to such legislation; the court held, however, that the consolidation created a new corporation subject to such legislation as the constitution of the state at the time of the consolidation permitted it. Justices Field and Strong again dissented on the general ground that the state legislature had no authority to prescribe maximum rates to the company while continuing its existence and management of the line agreed in the original charter not to be subject to such action.

Another railroad case in this year, 1877, is of special interest because of the change that the court found itself compelled to make a few years later in its rulings on the same subject. One ¹ Husen brought suit against the Hannibal & St. Joseph R. R. Co. for damages alleged to have been incurred because of the violation by the company of an act of the Missouri legislature in relation to "Texas, Mexican or Indian cattle." The law in question provided that between March 1 and November 1 of each year no such cattle could be brought into or remain in the state, unless kept the entire previous winter in the state. They might be taken through the state on cars or boats, but the transportation companies should be liable for all damages resulting from Spanish or Texas fever along the line of transportation and the existence of the disease along such route should be *prima facie* evidence that it came from such transportation.

At the trial it was objected that the act was in violation of the constitution and an attempt by a state to regulate interstate commerce. It was earnestly argued and the numerous holdings as to quarantine powers and the right to prohibit the carrying of detrimental articles all cited. Judge Strong, however, in passing on the case found only the question raised whether the act was a regulation of commerce and so void as infringing upon the powers of Congress under the constitution. He found that the statute, since it absolutely prevented the importation of healthy cattle during two-thirds of the year, put a burden upon such cattle when merely carried through the state and must be regarded as a regulation of commerce, unless it could be justified as a measure of police.

¹ 95 U. S., 465.

Citing the cases of ¹ *Henderson vs. Mayor* and ² *Chy Lung vs. Freeman*, he says that in the first a statute which was sought to be justified as a measure to prevent the introduction of paupers and in the second one that pretended to exclude lewd women were each held bad, because they were applied to all passengers indiscriminately and were manifestly intended to be a tax on such commerce and their police character was a mere pretext. He cites the cases holding that such a statute is a police regulation and which refused to inquire whether it does not go beyond legitimate police action, but declares that question is not one for the legislature only:

"The police power of the state cannot obstruct foreign commerce, or interstate commerce, beyond the necessity of its exercise."

Under color of it, objects not within its scope cannot be secured at the expense of the protection afforded by the federal constitution.

The trouble with this determination was eventually found to consist in the fact that the law was a genuine application of the police power. The cattle in question, it has now long been known, even if themselves healthy, are liable during the warm months to communicate the fever to native cattle. The statute was not, in fact, as Judge Strong wrongly concludes, the result of commercial jealousy and an effort to give an advantage to the Missouri cattle raiser. It is noteworthy in this case, which had ultimately to be practically abandoned, though not formally overruled, that the relation between the powers of the state and the federal constitutions are much more accurately set forth than in the Granger cases. An examination of the decision makes the reason clear. The police power and the commerce clause had been disputing for half a century. The fourteenth amendment was a new antagonist. Chief Justice Waite in deciding the Granger cases could not pick out his principles from preceding ones, as Judge Strong, in passing upon this one of *Railroad Company vs. Husen*, could take his from all the long line of precedents in the federal court.

The police power and the commerce clause of the federal constitution collided again in ³ *Hall vs. DeCuir* in this year of 1877. The legislature of Louisiana had enacted that no one be refused admission to public conveyances or expelled from them by reason of discriminations on account of race or color, or for any reason except failure to pay fare, bad character or bad conduct in certain

¹ 92 U. S., 259.

² *Id.*, 275.

³ 95 U. S., 485 (1877).

particulars, and that any one so refused, expelled or discriminated against might recover exemplary damages of the offending party.

Benson, the owner of a steamboat plying between New Orleans and Vicksburg, took on board at the former city Mrs. DeCuir to convey her to Hermitage, Louisiana, and because he refused her the privilege of the cabin reserved for white ladies she sued and recovered a thousand dollars. Benson insisted that he was engaged in interstate commerce and that the act of the Louisiana legislature could not affect him. After his death his administrator appealed the case to the Supreme Court of Louisiana, and when the judgment was there affirmed took it to Washington.

Chief Justice Waite gave the opinion :

" There can be no doubt but that the exclusive power has been conferred upon Congress in respect to the regulation of commerce among the several states. The difficulty has never been as to the existence of the power, but as to what is to be deemed an encroachment upon it, for, as has been often said, legislation may, in a great variety of ways, affect commerce without being a regulation of it within the meaning of the constitution. It would be useless to undertake to fix an arbitrary rule by which a line must in all cases be located. It is far better to leave a matter of such delicacy to be settled in each case upon a view of the particular rights involved."

This seems very like saying that the power of Congress is exclusive, but nobody has ever been able to find out just what it excludes. The chief justice adds :

" But we think it may be safely said that state legislation which seeks to impose a direct burden upon interstate commerce, or to interfere directly with its freedom, does encroach upon the exclusive power of Congress. The statute now under consideration in our opinion occupies that position. It does not act upon business through the local instruments to be employed after coming within the state, but directly upon the business as it comes into or goes out from within."

Attention is called to the fact that the Mississippi river borders upon ten states and is a highway for them all, and the conclusion is reached that its commerce must be kept free of such local legislation. Judge Clifford, in a concurrent opinion holding that the power of Congress is exclusive and the states have no authority unless the nature of the subject or the terms of congressional legislation leave something to them, once more contributes to the endless discussion of the relations between the cases of *Gibbons vs. Ogden*

and *Wilson vs. Blackbird Creek Marsh Company*. He finally reaches the conclusion that Judge Marshall saw no opposition between the two and that the latter case was considered by him to be so remotely connected with commerce that the state's local legislation under consideration in it was wholly within the police power of the state.

As to this, it may be said that the most careful reading of *Blackbird Creek Marsh Company* case will fail to show that any such sharp distinction between commercial and police powers was in the mind of Chief Justice Marshall. That he did not regard the two cases as conflicting seems certain. That he had expressly declined to decide in the first that the unexerted power of Congress is exclusive of that of the state would seem reason enough for his so thinking.

In this same year of 1877, in the case of *Pensacola Telegraph Company vs. The Western Union Telegraph Company*, it was decided that while ordinarily corporations might be excluded at will from a state, as the previous cases of *Paul vs. Virginia* and *Bank of Augusta vs. Earl* had determined, yet telegraph companies were by act of Congress permitted to set up lines along all post roads and all railway lines were post roads, therefore the Western Union Telegraph Company could lay its lines along a Florida railway, even where a Florida company had from the state an exclusive franchise to do so. Judge Field filed an energetic dissenting opinion from this decision and its plain consequences, viz., that Congress could legislate any kind of a transportation company into any state in defiance of its laws. But from this time the doctrine that transportation agencies authorized by Congress may not be excluded from a state by its legislature was firmly established.

At this term of the Supreme Court the case of *Railroad Company vs. Richmond* held in terms that

"appropriate regulation of the use of property is not taking it within the meaning of the constitutional prohibition."

The *Richmond, Fredericksburg & Potomac R. R. Co.*, incorporated in 1834, had been then authorized to place on its road all machines, vehicles, carriages, wagons and teams necessary or proper for transportation, and required to furnish transportation for per-

¹ 96 U. S., 1.

² 8 Wall, 168.

³ 13 Pet., 519.

⁴ 96 U. S., 529.

sons and property at rates allowed by the charter. It was admitted into the city of Richmond by special resolution of the city board authorizing its location on certain lines.

When first commencing operation the railroad company was involved in a controversy with the city authorities as to the drawing of trains with steam power through the city and across Broad street to depot and grounds across such street, but was permitted to do so. In 1874 an ordinance of the city was passed forbidding to the company any use of locomotives on a certain portion of their track across and east of Broad street, and providing a penalty of \$100 to \$500 for violation of the ordinance. Upon judgment for the penalty being rendered in the state courts the matter was taken to the federal Supreme Court and the action upheld.

"All property within the city is held subject to the legitimate control of the government, unless prohibited by contract rights, which is not the case here. Appropriate regulation of the use of property is not taking it within the meaning of the constitutional prohibition."

It is also held that as the plaintiff railroad company alone had authority to run cars across Broad street, the fact that it alone was forbidden by the ordinance from using steam power for such purpose would not make the ordinance a denial to the company of equal protection of the laws.

At this same session of 1877, the case of *ex parte* Jackson was decided. The petitioner for writ of habeas corpus and certiorari, Jackson, had been convicted of sending through the mails a circular advertising a lottery, in violation of a statute of the United States providing that lottery advertisements should not be sent through the mails, and that one who would knowingly send them with intent to defraud should be fined. He claimed that the statute was unconstitutional and not warranted by any power in Congress, that it was only competent for Congress to make necessary arrangement for the management of the post roads in the carriage of the mails, and that the protection of the people from fraud was no part of its jurisdiction.

The court carefully guards the constitutional rights of citizens to be exempt from unreasonable searches and seizures, and affirms that this provision extends to protection of sealed matters in the mails. But it is declared to be in the power of Congress to say

¹ 96 U. S., 727.

what shall be carried and how, and to provide a punishment for attempting to use the mails unlawfully. The court thought the freedom of the press sufficiently vindicated by asserting that Congress had no power at the same time to refuse to carry by mail printed matter and to forbid its diffusion by other means. So it was held that the conviction was warranted. Congress could not authorize an inspection of sealed matters except upon a warrant duly issued for such purpose, but it might forbid the transportation of obscene or fraudulent matters, and if they were unsealed could ascertain their character by the inspection of the postal officers and employés.

The old dispute between President Jackson and Senator Calhoun over the former's ¹ proposition to exclude anti-slavery publications from the mails in slave states, and the conclusion that Congress had no such power, was brought forth to aid the petitioner. The court says, however, that the conclusion then reached rested upon an assumption that if Congress had such power, it had also the power to forbid the circulation of printed matter in the states by other means than the mails, at least over postal roads, and all roads, waterways and railroads might be declared postal roads, and Congress thus be invested with authority to prohibit absolutely the circulation of anything of which it might disapprove. This assumption the court denies and, therefore, the conclusion from it—that all such laws were invalid.

The idea often propounded, and which derives support from expressions of the federal Supreme Court, to the effect that the police power is exclusive and belongs to the state, and that no such power pertains in any degree to the federal government, could not well get a harder blow than this decision. Evidently the court concluded that the only distinction between powers of government is in the subjects to which they were applied, and consequent variations of the manner of exercising them. The use of the power to establish post offices and post roads, incidentally to protect the people of the states from lottery enticements, would seem to show conclusively enough the difficulty in finding any other ground of distinction between powers. Perhaps the same thing will appear a little more plainly in the Debs case.

In this year of 1877, too, the principles of ² *Bartemeyer vs. Iowa* were reaffirmed in briefer terms and without the cautious limita-

¹ Annual Message 1835, *Messages, etc., of Presidents*, Vol. iii, p. 175.

² 18 Wall, 129.

tions as to the effect of prohibitory laws upon property already in existence. In case of ¹Beer Co. *vs.* Massachusetts the plaintiff did not attempt to change the ruling in the Iowa case, but only to distinguish from it. The plaintiff had been chartered as a brewing company in 1828 by the state of Massachusetts. That state had passed a prohibitory liquor law substantially like the one examined in the Iowa case. The Beer Company claimed that the state had no power to practically destroy its franchise by forbidding absolutely the sale of its products in Massachusetts.

It was held, in the first place, that the state of Massachusetts having reserved the right to change or repeal the company's charter, the exercise of that right even to the extent of forbidding the sale of the company's products was no violation or impairment of the obligation of any contract. It was further held that such reservation was unnecessary. On the authority of *Boyd vs. Alabama*, 94 U. S., 645, it was declared that forbidding the sale of intoxicating liquors was such a police act as no legislature could sell or bargain away the right to do, and that such a law does not in itself in the case under consideration violate any provision of the constitution of the United States, neither fourteenth amendment nor commerce clause. Evidently appropriate legislative action as to the use of property is not a taking.

¹ 97 U. S., 25.

CHAPTER X.

DEVELOPMENT OF THE FOURTEENTH AMENDMENT.

Among the early cases decided in 1878 was ¹ *Cook vs. Pennsylvania*. A statute of that state passed in 1853 and modified in 1859 required every auctioneer to pay into the state treasury a percentage on all his sales. Seven hundred and fifty-seven and 83-100 dollars was claimed of Cook on certain foreign merchandise sold by him in the original packages. He declined to pay; and the federal court said he need not, that the law was so far a state tax on imports as to be void and would not be justified as either a police regulation or the sale of a state franchise. This seems to us so inevitable a conclusion that the fact of the law remaining unchallenged for a quarter of a century shows the slowness of perception of the federal constitution's effect on the states.

In the same year the federal court touched the police power in ² *Fertilizing Co. vs. Hyde Park*, this time by way of a modification of the Dartmouth College case. The legislature of Illinois had granted the plaintiff company a charter to locate its chemical works and carry on for fifty years the business of converting offal from the Chicago slaughter-houses and from dead animals into fertilizers in Cook county and south of the dividing line of townships 37 and 38. They so located their plant, and bought land which afterwards came within the village of Hyde Park. The people found their business a nuisance. An ordinance of the village forbade the carrying of such material or products through its streets or on the railroads through it. The company sought to enjoin the execution of the ordinance. The state courts refused to do so. It took the case to the federal Supreme Court, asserting that its charter was a contract and the ordinance a violation of it.

The majority of the court held, in the first place, that there was no express contract providing in terms that the village of Hyde Park should not interfere with them, and, in the second place, that if there had been, it would probably be void as an unauthorized

¹ 97 U. S., 566.

² *Id.*, 659.

limitation of the police power, citing ¹ *Beer Co. vs. Massachusetts*. Justice Miller concurred for the former reason, and because he thought the ordinance left the company room enough still to carry out the terms of the charter outside of the village and within the boundaries fixed by law. Justice Strong dissented altogether. He shows, as it would seem unanswerably, that the company was authorized by the state to carry on its business at *any* point south of a certain line in Cook county for fifty years; that it had its business located and its arrangements made under this franchise, and to carry on this business it was necessary to do things which the ordinance forbade. He thought the state could not authorize its municipality to prevent the very thing which the state itself had agreed to permit, without impairing the obligation of the contract in the charter. He repudiated the second ground of the decision in *Beer Co. vs. Massachusetts*, and was for applying undiluted the doctrine of the Dartmouth College case.

He seems to have stood alone among the judges. The case has been and is upheld, but it can only be upon the ground that the Dartmouth College case is modified to the extent that a charter is never to be construed to grant away the police power of the state enacting it. While the police power still remains as indefinite a term as the courts have heretofore made it, it is evident that a large portion of the Dartmouth College case is shorn away.

In the case of ² *Transportation Co. vs. Chicago* the court again touched upon that burning question in the Granger cases, whether action of the state affecting the use of property was to be considered a deprivation of it, and again were constrained to deny such conclusions. The city had built a tunnel under the Chicago river, and in doing so, the Transportation Company claimed, had weakened the support for the walls of the latter's buildings. It also claimed that by reason of a coffer-dam in the river, built to aid the excavation of the tunnel, access to the company's dock had been impeded.

The court finds no ground of complaint on either account; both street and river are declared to be public highways and under the jurisdiction of the city. If, without actually invading the Transportation Company's lots the city impaired the company's use of its property, no cause of action arose.

¹ 97 U. S., 25.

² 99 U. S., 635 (1878).

In the year 1879, in ¹ *Tennessee vs. Davis*, the right to remove a criminal case from state to United States courts when defense of acting under federal law is set up was passed upon. James M. Davis, a deputy revenue collector of the United States, was indicted for murder in Grundy county, Tennessee. He applied to the Circuit Court of the United States for that district to remove his case into that court, on the ground that the act of shooting for which he was indicted was in necessary self-defense while he was in the official service of the United States.

The judges of the Circuit Court disagreed as to whether such an indictment was removable under section 643 of the United States revised statutes, and whether, if removable, there was any procedure for trial of it, and whether such a trial of the indictment could be had in that court. The Supreme Court, in an opinion by Justice Strong, answers all three questions in the affirmative.

They find the statute provides for removal of the case; that the general procedure of the Circuit Court is adequate to its trial. The existence of this power is affirmed on the ground of its necessity in order that state action may not paralyze the federal government. Justice Clifford, with whom concurred Justice Field, dissented in a careful opinion, whose main position was that jurisdiction had been given to United States courts by the constitution only over offenses against the United States authority. The right of removal in this case was asserted because of the claim that the defendant's action was justified by United States law and his duty as an officer. The authority to take the prosecution of an offense which was solely against the laws of a state out of the hands of that state and its courts was earnestly opposed.

Justices Clifford and Field return almost to Taney's definition of the police power :

"State police, in its widest sense, comprehends the whole system of internal regulation by which the state seeks not only to preserve the public order and to prevent offenses against her authority, but also to establish for the intercourse of one citizen with another those rules of justice, morality and good conduct which are calculated to prevent a conflict of interests and to insure to every one the uninterrupted enjoyment of his own as far as is reasonably consistent with a like enjoyment of equal rights by others."

¹ 100 U. S., 257 (1879).

Judge Chase's holding in ¹*The United States vs. DeWitt*, that Congress has no authority of this kind within a state, is cited.

Nevertheless, the decision stands, and its authority is no longer questioned. We shall even see it extended in ²*Davis vs. South Carolina*. The right to such a removal is to-day unchallenged, showing once more how impossible is the putting of any but practical limits to the extent of authority. No theoretical conclusions as to the nature of police powers or their exclusive inherence in the states can maintain themselves against the practical needs and actual power of the general government.

In the succeeding cases of the same year, ³*Strauder vs. West Virginia*, ⁴*Virginia vs. Rives*, and ⁵*ex parte Virginia*, the fourteenth amendment and the negro problem, and the relations of both to the power of the states, came forward once more. The first was a holding that a state law confining jury service to male white persons was a violation of the provision of the fourteenth amendment that forbids a state to make or enforce a law denying to any person "the equal protection of the laws." *Strauder*, a negro, had been found guilty of murder by a white jury selected under such a law. He had objected to such a trial and demanded that his case be transferred to the United States courts, which was refused. The West Virginia Court of Appeals having confirmed his sentence, the case was taken to the United States Supreme Court, which reversed the Court of Appeals and set the sentence aside. It was held that *Strauder* had a right to remove the case to the United States Circuit Court to procure a vindication of his constitutional rights.

In *Virginia vs. Rives*, *Burwell* and *Lee Reynolds*, both colored, were indicted for murder and demanded a jury in part composed of colored persons. This was refused, and they applied for a removal of their case to the federal court. This was refused, and they were tried and convicted. Being given a new trial in the state court, they again presented their claim for removal under the United States statute which provided for it where one is denied a right guaranteed by United States laws or constitution, or is unable to enforce the same in state courts. They were again refused and one convicted, the jury disagreeing as to the other.

¹ 9 *Wall*, 41.

² 107 *U. S.*, 597.

³ 100 *U. S.*, 303.

⁴ *Id.*, 313.

⁵ *Id.*, 339 (1879).

At this stage of the proceedings their petition for removal was docketed in the United States Circuit Court and a writ issued to put them in the custody of the marshal. Then, without any motion to remand the case, the commonwealth of Virginia applied to the United States Supreme Court for a writ of mandamus to the circuit judge and marshal to return them. The court found the proceedings of the state in making the application proper, found that the law of Virginia made no discrimination among its citizens, white or black, as to jury service, and held that if the officers made such discrimination the appeal was, in the first instance, at all events, to the state authority, and that there was no case for removal, and they were directed to be returned to the state authorities.

Judge Field filed a concurring opinion. With his brilliant discussion in it of the writ of mandamus we are not much concerned, but he held that the act of Congress, so far as it attempted to give the United States courts jurisdiction to enforce state laws, was invalid and unconstitutional. The constitution had fixed the limit of the judicial power of the nation and had confined it to cases arising under the laws and constitution of the United States. Neither words nor implication extended it to cases arising under the laws of the several states. The downfall of nearly all the civil rights legislation of Congress is here distinctly prefigured. In *ex parte* Virginia, however, the next case, a portion of such legislation was sustained. J. D. Cole, county judge of Pittsylvania county, Va., was indicted and placed in the custody of the United States marshal of his district for excluding colored citizens from juries, whose selection was a part of his duties. He applied to the Supreme Court for a writ of habeas corpus, and the state of Virginia also applied for his liberation that he might discharge his ordinary duties.

The court concluded it was proper practice if a case for his release had been made out, but held that the act of Congress of March 1, 1875, section 4—that no citizen should be disqualified for jury service on account of race, etc., and that any officer who should exercise any such discrimination in selecting jurors should be fined not exceeding five thousand dollars—was constitutional, Judges Field and Clifford again dissenting.

The law they thought unconstitutional for lack of power on the part of Congress to interfere with such a purely local concern

as deciding who should and who should not serve as jurors. They thought that it was a political, not a civil, right, and like the right to hold an office, dependent on the will of the state.

The next ¹case was also a petition for a writ of habeas corpus. The act of May 31, 1870, and its supplementary act of May 28, 1871, known as the enforcement bill, was in question. Among its provisions were some making it a penal offense against the United States for an officer at an election for congressmen to do any act unauthorized by law, or make fraudulent certificates, or interfere with any other election officer in regard to such election. The petitioners, Siebold *et al.*, were indicted in the United States District Court of Maryland for violating this law while serving as judges of election in the city of Baltimore by putting in false ballots and making false returns.

It was argued that Congress must either provide for the entire management of elections or let the states do it. Judge Bradley, who rendered the decision, did not find such a meaning in the constitutional provision that Congress might not make or alter regulations for congressional elections:

² "The more general reason assigned to it, that the nature of sovereignty is such as to preclude the joint coöperation of two sovereigns in matters in which both are mutually concerned, is not, in our judgment, of sufficient force to prevent concurrent and harmonious action on the part of the national and state governments in the election of representatives. It is at most an argument *ab inconvenienti*."

"There is nothing in the constitution to forbid such coöperation. If the two governments had an entire equality of jurisdiction there might be an intrinsic difficulty in such coöperation. By first taking jurisdiction of the subject the state would acquire exclusive jurisdiction in virtue of a well-known principle applicable to courts having coördinate jurisdiction over the same matter; but no such equality exists in the present case. The power of Congress is, as we have seen, paramount. We hold it to be an incontrovertible principle that the government of the United States may, by means of physical force exercised through its official agents, execute on every part of American soil the powers and functions which belong to it."

"This necessarily involves the power to command obedience to its laws, and hence the power to keep the peace to that extent. This power to enforce its laws and to execute its functions in all places does not de-

¹ *Ex parte Siebold et al.*, 100 U. S., 391 (1879).

² 100 U. S., p. 392.

rogate from the power of the state to execute its laws at the same time and in the same place. The one does not exclude the other except where both cannot be executed at the same time. In that case the words of the constitution itself show which must yield. Without this concurrent sovereignty referred to the national government would be only an advisory government. Its executive powers would be nullified.¹

The conviction was upheld.

In *ex parte* ¹ Clarke a similar case from Cincinnati was similarly decided. Judges Field and Clifford again dissent on the ground that the acts punished were violations of state law, and that the act of Congress itself could not make violations of state law punishable by United States authority. Judge Bradley's reasoning, that the acts of the defendants were violations of federal as well as of state statutes in a matter which the constitution had permitted Congress to act upon, seems unanswerable.

In ² *Newton vs. Commissioners*, decided at the same term, an Ohio county seat had been by an act of the legislature "permanently" located at a certain place in consideration of the doing of certain things by the people of the locality. A subsequent act authorized the removal of the county seat. This was sought to be prevented in the federal court on the ground that it was impairing the obligation of the contract, but the court held that the location of a county seat is an exercise of political power which could not be bargained away.

In ³ *Stone vs. Mississippi* a lottery company had obtained, in consideration of the payment of \$5,000 to the state treasury for the use of the University and an annual payment of \$1,000, together with one-half of one per cent. on all receipts for tickets sold, a franchise to conduct a lottery for twenty-five years. The state having adopted a constitution forbidding such lotteries, the company sought to enjoin the state officers from enforcing it. But the Supreme Court holds, on the authority of ⁴ *Beer Co. vs. Massachusetts* and ⁵ *Fertilizing Co. vs. Hyde Park*, that the power of a state could not be limited by such an agreement, and the doctrine that no contract of a state can be held to limit its police power, so cautiously advanced in *Fertilizing Co. vs. Hyde Park*, was distinctly established.

¹ 100 U. S., 400 (1879).

² *Id.*, 548 (1879).

³ 101 U. S., 814 (1879).

⁴ 97 U. S., 25.

⁵ *Id.*, 659.

In ¹ *Neal vs. Delaware* the relations of the fourteenth and fifteenth amendments to the jury laws of that state was considered. Neal, a colored man, had been indicted in the Court of General Sessions in New Castle county for rape. His case had been removed to the Court of Oyer and Terminer of the same county, the highest court to which it could be taken.

There counsel was especially appointed for his defense, and filed a petition for its removal to the United States Circuit Court on the ground that both statute and constitution in that state denied to colored men the right to vote and only voters might serve on juries; that the officers of the court excluded colored persons in drawing juries, and he was denied the equal protection of the laws guaranteed him by the federal constitution. The petition was denied and the defendant excepted; then, before being arraigned, he moved to quash the panel of jurors for the reason that all persons of African race had been excluded on account of race and color. This was also overruled for the reason that, although no Africans were on the panel, there was no evidence that their exclusion was on account of race or color.

Defendant again excepted, and was arraigned. Before pleading he asked to be allowed to produce witnesses and the lists and panels of both the grand and petit juries of the court which found the indictment and of the court of trial. This was also refused, on the ground that the time for this was before the motion to quash was passed upon. He was found guilty and sentenced to death by hanging. A writ of error was issued to bring the case into the United States Supreme Court.

The constitution of the state confined the right of suffrage to free white male citizens of the age of twenty-one years and upwards. The statute on the subject of jurors provided that all persons qualified to vote at general elections, with certain specific exceptions, should be liable to serve as jurors; that the "levy court" for each county at its March session should select one hundred sober and judicious persons to serve as grand jurors and one hundred fifty as petit jurors in the courts for the year to be held in the county, and one hundred twenty more to serve as petit jurors if called. From these names the jurors were chosen by lot. This method had been followed in getting a jury in this case.

¹ 103 U. S., 370 (1880).

The errors claimed were that the state court should have granted the removal, should have sustained the motion to quash the panel and should have allowed evidence to be taken in support of that motion. For the state it was answered that the federal constitution in the fourteenth and fifteenth amendments, made colored people citizens, and entitled them to vote; that the state constitution in that respect was thus superseded, and the jury law must be construed with reference to the changed conditions, and so made colored voters liable to jury service; that the motion to quash was unsupported by facts, and the application for leave to bring evidence of them came too late.

The court goes over the Virginia cases and again concludes the federal statute, allowing removals where inability to obtain a right guaranteed by federal law or constitution is shown, to be valid, and also the act forbidding discrimination in jury service on account of race. It holds that the fifteenth amendment of the federal constitution abrogated all provisions of the state constitution or statute denying to the colored race the right of suffrage, and that the petition for removal on that ground was rightly overruled.

But the court held that the motion to quash the panel of jurors should have been sustained.

"The fact, so generally known that the court felt obliged to take judicial notice of it, no colored person had ever been summoned as a juror in any court of the state, though its colored population exceeded twenty thousand in 1870, and in 1880 exceeded twenty-six thousand in a total population of less than one hundred fifty thousand, presented a *prima facie* case of denial by the officers charged with the selection of grand and petit jurors of that equality of protection which has been secured by the constitution and laws of the United States."

Justice Waite dissented because he thought that the decision of the trial court, that the showing of discrimination was insufficient, was not clearly shown to have been wrong. Judge Field, for the same reason and also the reason given in the Virginia cases, that the serving upon juries was a political right and the determination of their qualification was with the states.

The Virginia cases and *Neal vs. Delaware* were further applied in ¹*Bush vs. Kentucky*. He had been indicted in 1879 for murder. Under the ruling in the Virginia cases, his was removed into

¹ 107 U. S., 110 (1883).

the United States courts after one conviction had been had and reversed in the state courts. The indictment was quashed after such removal, on the ground that it had been found by a grand jury from which colored persons had been wrongfully excluded, and he was set at liberty.

A new indictment was then found against him. He alleged the former proceedings and his discharge by the United States court. The plea was held insufficient; the state court then ordered the sheriff to summon jurors without regard to race, and Bush again applied for a removal. This was refused. He was again found guilty, and his sentence affirmed by the Kentucky Court of Appeals, and by proceedings in error the case was taken to the federal Supreme Court.

It appeared that the state statutes provided for only white jurors; it also appeared that the state Court of Appeals, its highest tribunal, had held those statutes unconstitutional; it was shown that a motion to quash this second indictment, on the ground of the unlawful exclusion of colored men from the grand jury returning it, had been overruled. The Supreme Court, in an opinion by Judge Harlan, held that in the absence of evidence it was to be presumed that the state officers followed the state statute, and that the jury was wrongly drawn, and the overruling of the motion to quash therefore erroneous.

The next week was decided a case, ¹*Pace vs. Alabama*, which held that the Alabama statute in providing one punishment for fornication between parties of the same race, and a severer one where one party was white and the other black, infringed no constitutional right.

At the same time section 5519 of Revised Statutes of the United States was held unconstitutional in ²*United States vs. Harris*. The section provided a fine for conspiring or going in disguise on the highway on another's premises to deprive any person of the equal protection of the laws or of equal immunities under the laws, or to hinder the constituted authorities from securing to each person such equal protection.

The defendants, Harris and others, had been indicted in the western district of Tennessee under this statute, and had demurred to the indictment; the judges had disagreed as to the case, and cer-

¹ 106 U. S., 583 (1883).

² *Id.*, 629 (1883).

tified such disagreement to the Supreme Court. The Supreme Court held that the fifteenth amendment had no relation to the case; that the fourteenth had no more, because it served only as a restraint upon state and not upon private action; that the thirteenth could not uphold the statute, as the latter related to conspiring for other purposes as well as such as were connected with that amendment, and was by no means confined to attempts to enforce slavery or involuntary servitude, and it was therefore unconstitutional.

That the fourteenth amendment, in subjecting the exercise of police powers by the state to the supervision of the federal Supreme Court had not essentially reduced them was again shown in ¹*Escanaba and Lake Michigan Transportation Company vs. The City of Chicago*. The steamships of the plaintiff company, in carrying iron ores up the Chicago river, found themselves inconvenienced by certain ordinances of the city which required drawbridges over the river to be closed from six to seven o'clock in the morning and from 5.30 to 6.30 in the evening, and between those hours not to be kept open while passengers were waiting to cross longer than ten minutes at a time, and when closed to remain so for twenty minutes if needed to accommodate passengers.

The regulation was found by the court to be a reasonable one, and though the stream was held a navigable river, Congress not having acted on the matter, the authority of the city unquestionable. A long line of federal authorities, among which Chief Justice Marshall's opinion in ²*Wilson vs. Blackbird Creek Marsh Company* and Justice Curtis' in ³*Gilman vs. Philadelphia* were foremost, were cited.

In October, 1883, the five cases known as the Civil Rights cases were decided. Two of them, the ⁴*United States vs. Stanley* and the *United States vs. Nichols*, were for refusing colored persons hotel accommodations. Two of them, the *United States vs. Ryan* and *United States vs. Singleton*, were for refusing accommodation in theatres, and the other, *Robinson and Wife vs. Memphis, etc., Railway Co.*, was for refusing to let the wife ride in the ladies' car on defendant's road, as she claimed, because of her African descent.

The Stanley case came on a certificate of difference of opinion from United States Circuit Court of Kansas; the case *vs. Nichols*

¹ 107 U. S., 678 (1883).

³ 3 Wall., 713.

² 2 Pet., 245.

⁴ 109 U. S., 3.

on a like certificate from Missouri, and the case against Singleton in the same way from New York; the case against Ryan on error to the Circuit Court of California, and Robinson and wife against the railway from Tennessee on error. The Circuit Court of California had sustained a demurrer to the information against Ryan for refusing accommodation in his theatre to colored persons, and held the civil rights act unconstitutional. In Tennessee the Circuit Court had held the law valid, but the plaintiff had been defeated in a trial on the merits of her action, the jury finding that the railway conductor had reason to refuse admission to the plaintiff aside from her color.

The obvious question in all of these cases was the constitutionality of the first two sections of the act of Congress of March 1, 1875, originally enacted in substance in 1866, and the right of Congress to legislate in this manner for the people of the states. The first section provided that all persons in the jurisdiction of the United States should be entitled to equal accommodations and privileges in public inns, conveyances and places of amusement, subject only to conditions not relating to race, color or former servitude. The second section provided a penalty of five hundred dollars, to be paid to the persons aggrieved in case such equal accommodations were denied, and made every one who was in any way responsible for such denial guilty of misdemeanor and subject to a fine of from five hundred to one thousand dollars, or to imprisonment for from thirty days to one year.

Judge Bradley, who gave the opinion of the court, says that the principal argument for the constitutionality of the act was the views and opinions of distinguished senators advanced when the law was under discussion in their bodies, and that the authority, if any there is, in the federal constitution for such laws must be found in the last three amendments, and especially in the first section of the fourteenth; but this had been already held to be merely a prohibition on the states.

"Individual invasion of individual rights is not the subject-matter of the amendment. It has a deeper and a broader scope. It nullifies and makes void all state legislation and state action of every kind which impairs the privileges and immunities of citizens of the United States, or which injures them in life, liberty or property without due process of law, or which denies to any of them the equal protection of the laws. It not only does this, but, in order that the national will thus declared may not

be a mere *brutum fulmen*, the last section of the amendment invests Congress with power to enforce it by appropriate legislation; to enforce what? To enforce the prohibition; to adopt appropriate legislation for correcting the effects of such prohibited state laws and state acts, and thus to render them effectually null, void and innocuous. This is the legislative power conferred on Congress, and the whole of it. . . ."

"It does not authorize Congress to create a code of municipal law for the regulation of private rights, but to provide a mode of redress against the operation of state laws and the action of state officers, executive and judicial, when these are subversive of the fundamental rights specified in the amendment."

¹ *United States vs. Cruikshank*, ² *Virginia vs. Rives* and ³ *ex parte Virginia* are especially referred to. The section of the law held valid in the last-mentioned case is again pointed out to be entirely prohibitory on the states and their officers.

It is forcibly pointed out that deprivation of a right in the sense meant by the constitution can only be by political authority. The act of a private individual may invade a right and prevent temporarily its enjoyment, but it still inheres in the holder, and he presumably has his remedy. Of course, this rests upon the theory of 'Hobbes that legal rights are derived from the state. However offensive this may be to moralists, it will probably have to be conceded by lawyers.

No foundation for the law is found, then, in the fourteenth amendment; in the thirteenth is no authority for legislation except upon slavery and involuntary servitude. And in the fifteenth none except with regard to rights of suffrage. The law is, therefore, held invalid so far as these amendments are related to the two sections of it under consideration.

The earnest dissenting opinion of Judge Harlan seeks to find in the thirteenth amendment and its abolition of slavery and servitude and the power given to Congress to enforce it by appropriate legislation, authority to legislate on all social usages and practices growing out of slavery. His success does not seem great. It is a resort to implication beyond anything of the kind ever used in constitutional interpretation, and besides loses sight of the fact that the social usages are not necessarily founded on slavery, and prevail, if anything, even more strongly in states where slavery was never tolerated.

⁹² *U. S.*, 542.

¹ *100 U. S.*, 313.

³ *100 U. S.*, 339.

⁴ *Leviathan*, chap. 18.

The extended latter part of his opinion, in its argument to show that the general public had rights in the use of inns, public conveyances and public places of amusement seems beside the point. He has no difficulty in showing the large extent to which legislation as to all of them had been enacted, and how thoroughly they are within the grasp of public power. But the question was not as to the right to legislate on these subjects. The question was whether that right was vested in Congress or in the state legislatures. Its possession by the latter is made by Judge Bradley the ground for denying it to the former.

He once more questions the doctrine of the slaughter-house cases that the privileges and immunities of citizens of the United States referred to in the fourteenth amendment are only such as the constitution of the United States in terms or by distinct implication confers. He declares that the enjoyment of the rights sought to be vindicated in the civil rights bill, are among those included.

The weakness of his position appears when he asserts that these rights are as much secured to the negro by the thirteenth as the right of suffrage is by the fifteenth amendment. The prompt answer to which is, as the court had already held, no right of suffrage is secured to the negro by the fifteenth amendment; only that it shall not be denied him on account of his race and it is expressly named.

That the men who passed the civil rights bill and secured the adoption of the constitutional amendments thought they were obtaining for Congress the power to legislate over these subjects, is indubitable. To secure their adoption, however, they were couched in such general terms that the interpretation given to them in the Slaughter-House cases was inevitable when they fell into such able conservative hands as Judge Miller's.

His refusal to see in the privileges and immunities secured to each citizen by them any more than what the former interpretation of the constitution had placed among its guarantees, or to find any prohibition on legislation by the state with regard to their own citizens except what was plainly declared in the amendment, was clearly necessary to maintain the position of the state governments and prevent the lapsing of practically all legislative power over personal and property rights into the hands of Congress.

The alternative is that contended for by Judge Harlan in this case.

"I venture, with all respect for the opinion of others, to insist that the

national legislature may, without transcending the limits of the constitution, do for human liberty and the fundamental rights of American citizenship, what it did with the sanction of this court for the protection of slavery and the rights of the masters of fugitive slaves. If fugitive slave laws, providing modes and prescribing penalties, whereby the master could seize and recover his fugitive slave, were legitimate exertions of implied power to protect and enforce a right, recognized by the constitution, why shall the hands of Congress be tied so that under an express power by appropriate legislation to enforce a constitutional provision, granting citizenship, it may not by means of direct legislation bring the whole power of the nation to bear upon states and their officers and upon such individuals and corporations exercising public functions as assume to abridge or impair or deny rights confessedly secured by the supreme law of the land."

Of course the objection to this is that the slaughter-house cases had held that the rights covered by the laws in question were so far from being confessedly guaranteed by the constitution that they were not guaranteed by it all. That Judge Bradley, who had so strongly dissented from the conclusion reached in the slaughter-house cases should now be so strenuously supporting it, shows the change a decade of experience and reflection had wrought in his mind. It seems remarkable that Judge Harlan should have ventured to assert that the rights of the negro to use of inns and public resorts without discrimination on account of race rests on as express a constitutional warrant as did the master's right to reclaim his fugitive slave, and should say this without asking that the Slaughter-House cases be overruled, at least in all that portion of them defining what are and are not "privileges and immunities of citizens of the United States."

The truth is that a different decision by the court on this civil rights question, would have had no social effect to take away the color bar. The social purpose sought in this legislation, to borrow a phrase from Judge O. W. Holmes, was not then shared by the people and would not be to-day. There was room for a conservative construction that would defeat the law and the court adopted it rather than engage in a hopeless struggle to enforce it against social habits with which the court's members in fact sympathized.

The country has accepted its conclusions, and the inclination to attempt any such explicit change of the federal constitution in such terms that the court could not avoid it, has long gone by. The people of this country as a whole never desired any far-reaching al-

teration in the relative positions of the state and federal governments. There has never been a day since the doctrine of the slaughter-house cases was first announced, when any effort to adopt a new amendment that would do in unmistakable terms, what the proposers of the fourteenth amendment undoubtedly thought they had done, namely, give Congress the general power to legislate as to the rights and relations of citizens in the states, would have had any chance of success. None has ever been seriously proposed.

The so-called police power will remain with the states while there are states, if for no other reason than because, when it is taken away, they will be removed. Justice Miller deserves the credit of seeing clearly that they would not be states without it. The writers, like the author of "Political Science and Comparative Constitutional Law," who profess regret that this power was not held by the court to have been handed over to Congress by the fourteenth amendment, certainly do not recognize that what they want transferred is really the whole legislative power of the states. Their autonomy would be gone. Their police power is, as Chief Justice Marshall conceived it, the remnant of sovereignty left with them on the creation of the federal government.

At the same term with the civil rights cases was decided *ex parte* ¹Yarborough *et al.*, the Ku Klux cases. Jasper Yarborough and seven others had been convicted in the northern district of Georgia on indictments for conspiring to intimidate on account of his race, Berry Saunders, of African descent, in the exercise of his right of voting. It was claimed that Congress had no power to provide a punishment for this. Justice Miller, however, and the court thought otherwise. The right, they said, not to be disturbed because of his race in voting is expressly given him by the fifteenth amendment and the authority to protect him in that right is as plainly given to Congress as is the right to protect the mails and the money in them and more so.

The doctrine of ²Minor *vs.* Happersett that no right of suffrage is given by the amendment does not do away with the right of Congress to protect by legislation what is given, so once more we have police laws to govern elections passed by Congress and upheld by the court. The court, however, does not find it necessary to talk about any "electoral power" in Congress any more than it did to

¹ 110 U. S., 651 (1883).

² 26 Wall., 178.

make mention of "postal power" in *ex parte* Jackson. It is difficult to see why they might not as well do that as discuss a "commercial power," a term which has been well known in the opinions of the court, at least ever since Justice McLean's discussion of the passenger cases.

At this same important session, too, the power of the state was relieved from what threatened to be a severe restriction in the construction of the term due process of law. In 1879 the people of California had adopted a constitution providing that prosecutions for crime might be by information instead of by indictment or presentment of a grand jury. May 7, 1882, Hurtado had been convicted of murder in Sacramento county, California, on information for that crime without any investigation or presentment by a grand jury.

It was claimed on his behalf that such a conviction was not due process of law. The Supreme Court of the state, however, found that it was, and on error to the federal Supreme Court it was affirmed. Justice Matthews holds that the provision did not require presentment by a grand jury and due process of law as meant by the constitution cannot be given the effect of requiring the states to abide by the legal procedure in vogue at its adoption if the substitute is one which accords with legal principles and the needs of justice.

In the same term the ²slaughter-house cases came up in a new form. The legislature of Louisiana had repealed the franchise which had been held good in those cases. The holders of it claimed that this was an impairment of the obligation of a contract as their charter under which they had expended considerable sums of money, gave them an exclusive franchise to maintain stock yards and slaughter-houses for the city of New Orleans for a number of years. When the Butchers' Union Company were about to take advantage of the repeal and engage in the business the Crescent City Company procured from the federal Circuit Court an injunction against their doing so on the ground that the repeal of the exclusive franchise of the Crescent City Company was in violation of the federal constitution as impairing the obligation of a contract.

Judge Miller again rendered the opinion and this judge who in ³*Loan Association vs. Topeka* had declared that the executive, leg-

¹ *Hurtado vs. Cal.*, 110 U. S., 516 (1884).

² *Butchers' Union & Co. vs. Crescent City & Co.*, 111 U. S., 746.

³ 20 Wall., 635.

islative and judicial branches of the state and federal governments are all of limited and defined powers now found himself called upon to say whether one legislature could suspend for future legislatures, "that well-known but undefined power called the police power." He finds no better definition for this power than Kent's, 2 Comm. 340, which he had cited in the former case.

"Unwholesome trades, slaughter-houses, operations offensive to the senses, the deposit of powder, the application of steam power to propel cars, the building with combustible materials and the burial of the dead, may all be interdicted by law, in the midst of dense masses of population, on the general and rational principle, that every person ought to so use his property as not to injure his neighbors, and that private interest must be made subservient to the general interests of the community."

The law had been upheld in the former case expressly because it was an exercise of the police power and saved from condemnation as an interference with freedom to follow an ordinary occupation by no other argument; therefore, the franchise could not now very well be defended as not being an act of police. The question was clearly whether the police power could be bound by a state contract granting an exclusive franchise for a term of years. Following *Stone vs. Mississippi* and the preceding cases on which it is based, Justice Miller, who in the case of *Fertilizing Company vs. Hyde Park*, had refused to concur in this doctrine and had concurred in that case only because he was able to persuade himself that the charter was not violated, now himself, in plain terms, holds that such power of the legislature is given it to use and not to sell, and cannot be restrained by contract.

Justices Field and Bradley concur in this decision because they say the original act was void and not a police regulation at all, but a mere monopoly, having such alone for its object. They again protest against the narrow limits given in the *Slaughter-House* cases to "privileges and immunities of citizens of the United States," but they themselves had since concurred in carrying that narrow construction into effect in more than one case, and it was now too late to widen it.

At the same term, as in *Hurtado vs. California* it had been decided what was due process of law in a capital criminal case, so now in *Hager vs. Re-Clamation District*, the effect of that provi-

¹ 111 U. S., 701.

sion upon property rights was determined. The California law for reclaiming swamp and overflowed tide-lands and making them fit for culture was assailed. Districts were to be formed and the reclamation of such land therein undertaken on a petition by a majority of owners of lands concerned. Engineers were to be employed and three trustees be selected from the owners who were to report plans of work and estimates of costs to the county supervisors, and the latter were to appoint three commissioners to assess on each acre to be benefited, its proportionate share of expense to be collected with the annual taxes. If necessary the commissioners might make another assessment and report the additional amount. The assessments were to remain with the supervisors thirty days, and if not then paid to be sent to the district attorney to be collected like delinquent taxes.

In Yolo and Colusa counties 74,000 acres of land in one body capable of such reclamation was found. A district was formed and the commissioners estimated the expense at \$140,000; it was found, however, that \$192,000 more was required, and it was all assessed upon the lands. It was not paid and suits to collect it were transferred by non-resident owners to the federal Circuit Court, and there the lands were ordered sold to pay the assessments, and from this decree an appeal taken. The proceeding was held to be due process of law and the decrees affirmed. The act is held to be within the police powers of the state in providing for the general welfare and in no way interfered with by the terms of the fourteenth amendment.

With the setting aside of the civil rights bill and the final settlement of the right of the federal government to supervise the election of federal officers, the reconstruction cases seemed to have closed, and with the final upholding of the legal tender act, at the same term, the legal results of the war seemed to have been practically realized. The development of the results of the fourteenth amendment, however, as applied to the commercial life of the country, foreshadowed in *Fuller vs. Railroad Company* and the *Granger* cases was just beginning.

Just as the development of the doctrine of the Dartmouth College case and of *Gibbons vs. Ogden* in bringing forward federal restraint against state action by way of impairing the obligation of contracts and regulating commerce, had rendered a corresponding development of state power inevitable, and had given us the term

police power and its subsequent development, so we shall see as we have seen, that the maintenance of the due equilibrium required and caused the police power of the states to keep pace with the advancing application of the fourteenth amendment also. The raising of the levee on one side of the Mississippi river and crowding it forward against the waters does not more inevitably call for a corresponding increase in height on the other side.

CHAPTER XI.

THE FEDERAL SUPREME COURT AS THE ULTIMATE TRIBUNAL OF
PERSONAL AND PROPERTY RIGHTS.

At the session of the court beginning October, 1884, the cases of ¹*Foster vs. Kansas* as to prohibitory liquor laws and ²*Wurtz vs. Hoagland* as to the New Jersey drainage laws and especially ³*Barbier vs. Connolly* as to the relation of the fourteenth amendment to the "power of the state, sometimes termed its police power," are noteworthy.

In the case of ⁴*Foster vs. Kansas*, plaintiff had been county attorney of Saline county in that state and had refused to prosecute for sales of intoxicating liquors made in violation of the state constitution and statutes to enforce it. Quo warranto proceedings were commenced against him in the Supreme Court of the state, and he was removed from office. He obtained a writ of error, alleging the statute in question unconstitutional, though authorized by statute, the rules of civil procedure being applied to his case while he insisted that it was a criminal action.

The court held that absolute prohibition of sales for use as a beverage violated no principle of the federal constitution, and was no deprivation of property in liquors or in liquor manufacturing plants, and held the procedure adopted in this case constitutional. This very brief opinion marked the final abandonment of the once prevalent opinion that absolute prohibition of liquor sales for use as a beverage was a violation of rights of property when applied to stock on hand, although the United States Circuit Court for Kansas, two years later, in *State vs. Walruff*, asserted such a doctrine, and we shall see it attempted to be set up again in the Supreme Court.

In ⁵*Barbier vs. Connolly* the plaintiff was convicted of washing and ironing clothing between 10 o'clock in the evening and 6

¹ 112 U. S., 201.

⁴ 112 U. S., 201.

² 114 U. S., 606.

⁵ 113 U. S., 27 (1884).

³ 113 U. S., 27.

o'clock the following morning in a public laundry in the city of San Francisco ; an ordinance of the city required that within certain limits, for the sake of public health and security from fire, such work should not be done without a license from the city authorities and a certificate of the fitness of the premises used for the purpose, and not at all between the hours named. He claimed that the law and the ordinance passed in accordance with it were in violation of both federal and state constitutions, and especially of the fourteenth amendment. The state courts sustaining the conviction, he obtained a writ of error to the federal Supreme Court.

That court, in an opinion by Justice Field, says the purpose sought is a public one and the regulation such as municipal authorities are entitled to make and declined to interfere with it. The fourteenth amendment in declaring that no state shall deprive any person of life, liberty or property without due process of law, or deny to any person within its jurisdiction the equal protection of the laws, undoubtedly intended not only that there be no arbitrary deprivation of life or liberty or arbitrary spoliation of property, but that equal protection and security should be given to all under like circumstances in the enjoyment of personal and civil rights :

" But neither the amendment, broad and comprehensive as it is, nor any other amendment was designed to interfere with the power of the state, sometimes termed its police power, to prescribe regulations, to promote the health, peace, morals, education and good order of the people and to legislate so as to increase the industries of the state, develop its resources and add to its wealth and prosperity. From the very necessities of society, legislation of a special character having in view these objects must often be had in a certain district, such as for draining marshes and irrigating arid plains ; special burdens are often necessary for general benefits."

The provisions of this ordinance though severe were found designed to answer a public purpose and apparently imposed in good faith.

In *Wurtz vs. Hoagland* such police legislation for the prosperity of the state of New Jersey was under consideration. It provided that on application of at least five owners the board of managers of the State Geological Survey should examine any tract of marshy or boggy land, and if they thought it for the public interest and that of the owners affected, make surveys and report a system

of drainage to the Supreme Court of the state, which on reasonable notice should appoint three commissioners to carry it out, unless a majority of the owners should object. The expense and description of the land which ought to contribute to it were reported and notice given again with four weeks to object; and if objection was made, it should be summarily decided by the court, and the commissioners proceed to make assessment of the due proportion of each parcel in the expense, which assessment was to be published for six weeks, and any objections then made to be summarily decided by the court; and if assessment was set aside it should again be referred to the commissioners, and like proceedings had till a valid assessment was obtained. If not paid by a certain time the lands were to be sold to satisfy the assessment.

Under this statute Mrs. Wurtz' land was assessed to pay the sum of \$13,347.84, and over her objections this was confirmed by the state court and a writ of error procured from the federal Supreme Court because the decree

"violated the constitution of the United States in this, that it deprives plaintiffs in error of their property without due process of law, denies to them the equal protection of the law and violates the first section of the fourteenth amendment of the constitution of the United States."

The court, in an opinion by Judge Gray affirming the action of the state court, says:

"Laws for the draining and embanking of low grounds and to provide for the expense, for the mere benefit of the proprietor and without reference to the public good, are to be classed not with the taxing, but to the police powers of the government."

Chancellor Zabriskie's opinion in *Tide Water Co. vs. Coster and Barbier vs. Connolly* are cited.

In the session of 1885 and 1886 the number of cases brought into the court relating to property rights under the fourteenth amendment must have made Judge Miller wonder how he came to say he did not believe there would ever be a case brought in that court claiming denial of equal protection of the laws, except on behalf of some member of the African race. In *Missouri Pac. Railway Co. vs. Humes*, the railway company had been sued for killing a mule. By law of the state of Missouri if a railway company failed to fence its lines, double the amount of damages sustained

¹ 115 U. S., 512 (1885).

could be recovered for all stock injured on the right of way by passing trains. This was claimed by the company to be a denial of the equal protection of the laws and to deprive it of property without due process.

The court by Judge Field promptly held that there was no foundation for such a claim; that the act was a valid police requirement, and that having killed the mule the company must pay for two like him. In this decision the Supreme Court of the United States, while following the prevailing ruling of the state courts, is not by any means supported by all of them.

In *New Orleans Gas Light Company vs. Louisiana Light Company*, the *Louisville Gas Company vs. Citizens' Gas Light Company* and *New Orleans Water Works Company vs. Rivers*, the old struggle between the police power and the doctrines of the *Dartmouth College* case came back once more, and it is noticeable that decisions of the lower courts were reversed in all three cases. The *Dartmouth College* case still had more of vitality in it than the lower courts had believed. The latter had relied too strongly on the declarations in *Beer Company vs. Massachusetts*, *Fertilizing Company vs. Hyde Park*, *Stone vs. Mississippi* and *Butchers' Union Company vs. The Crescent City Live Stock Landing Company*, and had too hastily concluded that there was nothing left of the doctrine of the *Dartmouth College* case.

The *New Orleans Gas Light Company*, because of holding a charter from the state giving it an exclusive franchise for a number of years, was held to be entitled to enjoin another company, authorized thereto by the legislature, from laying gas mains and pipes and furnishing gas in the city. A similar right was allowed to the *Louisville Gas Company* in Louisville, and in *New Orleans Water Works Company vs. Rivers*, the lessee of the *St. Charles Hotel*, seven blocks from the Mississippi river, was prevented from supplying his house with water by pipes laid to that stream because the water works company had an exclusive franchise for fifty years to do that. The Supreme Court of the United States granted the water works company its injunction in an opinion by Judge Harlan, closing with:

"Under its averment, plaintiff was entitled to a decree perpetually restraining the defendant from laying pipes or mains in the public ways of

¹ 115 U. S., 650 (1885).

New Orleans for the purpose of conveying water from the Mississippi river to his hotel ; in common with all corporations and other citizens of New Orleans, he must abide by the contract which the state made with the plaintiff, for such is the mandate of the constitution of the United States."

He concedes that regulating the supply of light and water to a municipality is a police function " in the widest definition " of the term. He grants that the cases of *Stone vs. Mississippi*, *Fertilizing Company vs. Hyde Park* and *Beer Company vs. Massachusetts* establish that no corporate franchise can be held to interfere with the right and duty of the state to guard the public health, morals and safety. Within this limit the police power prevails over the constitution as expounded in the Dartmouth College case.

That a supply of light and water has relation to health, and on the authority of Macaulay's remark that the gas companies in London, by lighting it, had done more to suppress crime than all the governments since Alfred, also to safety, if not to morals, is admitted ; but the connection is held not close enough to restrain the application of the Dartmouth College precedent. The distinction from the case of *Butchers' Union Company vs. Crescent City Live Stock Company* is still harder to draw. Water supply would seem to have as close a connection with public health and morals as butchering, but Judge Harlan says the original franchise, in that case, was upheld only as a mere police regulation and was repealable as such.

Under these decisions we have two kinds of police power, one of which is restrained by valid contracts made by the state, and the other, which has to do with public health, safety and morals, is not. The result is, that the doctrine of *Stone vs. Mississippi* is not extended to municipal franchises for supplying water and light. The plain truth seems to be in questions of this kind, if the public emergency is one that has been deemed by former courts urgent enough to overthrow the municipal contract, then the latter goes down ; if not, then the doctrine of the Dartmouth College case is applied and the contract upheld. Meanwhile the court is careful to point out that there is a remedy—by the exercise of the power of eminent domain to condemn the franchise, by paying for it and removing it when it becomes intolerable.

At this same session another clause of the constitution did not come off so well in a contest with the police power. In ¹Morgan's

¹ 118 U. S., 455 (1886).

Louisiana T. R. & S. Company *vs.* Board of Health, the plaintiff steamship company obtained an injunction against defendant's collecting from its ships the fee allowed by a Louisiana law for each vessel examined and passing the quarantine station. The Supreme Court of the state dissolved the injunction. On error, that of the United States affirmed such action. The steamship company claimed that since the law graded the inspection fee by the size of vessels, it was a tonnage duty and forbidden in the federal constitution.

Judge Miller for the court says, "If there is a city in the United States that needs quarantining, it is New Orleans." He declines to say that the city must bear all the expense of inspection, and sees no objection to proportioning fees to the size of the vessel. He admits that the law might be said to be in some sense a regulation of commerce, because it certainly affected commerce, and as such doubtless came within the scope of federal authority, but it was also an exercise of police power, and good till Congress should abrogate it.

At the session of 1886-7, the right of gas and water companies to enjoy their franchise against any exercise of police power, even by the people in adopting a new constitution, was decided again in ¹St. Tammany Water Works Company *vs.* New Orleans Water Works Company. Over so much of the police power the triumph of the constitutional principle as to the impairment of contracts may be considered settled.

In ²City of New Orleans *vs.* Houston the same constitutional provision prevailed again. The legislature of Louisiana had in 1868 chartered a lottery company for twenty-five years, and in the charter provided that it should pay the state \$40,000 a year and not be subject to any other taxes. In 1879 a new constitution had been adopted establishing uniformity of taxation. In 1880 it was enacted that the city should have power to levy taxes which it was claimed covered the lottery company also.

The company procured the taxes enjoined as impairing the obligation of the state's contract. The Circuit Court sustained the injunction and the city authorities appealed to Washington. The Supreme Court upheld the injunction and the contract. It was with a lottery company, but related to taxation and not to the continuance of the business, and it was within the power of the state to sell

¹ 120 U. S., 64.

² 119 U. S., 265.

its right to tax the company, though not its right to abolish it, and the doctrine of *Stone vs. Mississippi* did not apply.

In the case of ¹*Wabash, St. L. & P. R. R. Company vs. State of Illinois*, its old antagonist the commerce clause gained a fall against the police power in a matter of serious moment. The attempt of a state to regulate charges for transportation of goods taken beyond the state was held unauthorized even as to the distance they were carried within the state. This was an important limitation of the *Granger* cases, and one of a long series of recessions from the position taken in them.

The railroad had taken a carload of merchandise from Peoria to New York for 15 cents a hundred pounds. On the same day it took from Gillman, Illinois, to New York a carload of similar goods for which it charged 25 cents a hundred pounds. The distance from Peoria is eighty-six miles farther and the Peoria car went through Gillman. An Illinois statute provided that if a railroad, by any direct charge, rebate, shift or devise, should charge for transporting any passenger or freight more than was charged for transporting in the same direction any other passenger or equal amount of freight of the same class, such charge should be *prima facie* evidence of unjust discrimination, and fixed a penalty not exceeding \$5000 with treble damages to the party injured for such discrimination.

The railroad company demurred to the constitutionality of the law, and the trial court found in its favor. The Supreme Court of the state, however, reversed this, and held the law good and not an infringement on the power of Congress under the commerce clause. Judge Miller, in the opinion of the court reversing this action, says that the precise question was not altogether new though not previously determined.

He admits that the language used in the *Granger* cases bears the meaning that states in which traffic originates may regulate rates though it goes beyond their borders, and concedes that in those cases the question of the effect of the state's action upon interstate commerce was treated as another application of the doctrine as to quarantine regulations, bridges over navigable streams, pilotage, etc.—that is, the states might act upon it, but not contrary to the express will of Congress.

He says, however, the main question was the right of the states

¹ 118 U. S., 557 (Oct., 1886).

to establish any regulation of rates over railroads. This was objected to, first, because it was the taking of property without due process, and, second, because it was a violation of their charters and an impairment of the obligation of the state's contract. These two questions, he thinks, were rightly resolved in those actions against the companies. The right of a state to impose such rates upon goods going beyond its borders, he thought, should be considered by itself. Citing State Freight Tax cases and *Hall vs. DeCuir*, he thinks they show that the court never intended to hold there is power in a state over goods going beyond it, and that such power is inconsistent with the free passage of persons and merchandise into and out of each state.

Judge Bradley dissented, and Justices Waite and Gray with him, on the ground that the state court had a right to presume that a contract to haul from Peoria to New York for a fixed price was an agreement to haul over each mile of the designated route for a proportionate share of that price, and the varying of prices in this case was, therefore, a discrimination practiced within the state of Illinois and amenable to its laws.

In holding that the state court might assume that the charge was at a uniform rate over the whole length of the route, and therefore at a forbidden rate in Illinois, the minority seem to have fairly exposed themselves to Judge Miller's criticism. If Illinois could do that, so could Indiana and Ohio and Pennsylvania and New York as to the portion of the route lying through the territory of each; and in the event of discordant regulations by these states through traffic would become impossible.

Indeed, the holding now firmly adopted by the court, that the states have no sovereignty over interstate and foreign commerce for any purpose, that there is conferred by the federal constitution upon citizens of each state and of the United States an indefeasible right to take into or carry away from any state any article of commerce they please, subject only to such regulations as Congress may make or sanction, effectually precludes the unimpeded exercise of such a police power as Judge Bradley talks about.

There seems only an implied consent that the states may provide for the public health, safety and morals in cases of real need by any regulation not forbidden by Congress.

In ¹ *Robbins vs. Taxing District of Shelby County*, it was de-

¹ 120 U. S., 489.

clared that the only way in which a state can act upon interstate commerce is in the exercise of its police power. The right to tax it in any way was denied, and a statute putting a tax of ten dollars per week or twenty-five dollars per month upon all "drummers" soliciting orders for goods was held void as respecting solicitors for persons outside of the state, although the same tax was lawfully assessed upon those soliciting for persons within the state.

From this to the doctrine of ¹*Bowman vs. Chicago & Northwestern Railway Company* was but a step. This was a suit for ten thousand dollars' damages brought by George and Fred Bowman in the United States Circuit Court for the Northern District of Illinois against the Chicago & Northwestern Railway Company for refusing to transport five thousand barrels of beer from Chicago to Marshalltown, Iowa. The railroad company answered that it was intoxicating liquor, and set up an Iowa statute providing that any railroad bringing such liquor into the state for any person without a certificate from the auditor of the county where it was to be delivered that such person was licensed to sell it should be fined one hundred dollars and costs for each offense, and such offense be complete in every Iowa county into or through which the liquor should be carried, and that plaintiffs had tendered no such certificate.

Plaintiffs demurred to the answer, the demurrer was overruled and the defendants had judgment. To reverse this plaintiffs procured a writ of error from the Supreme Court. In an opinion by Justice Matthews it reversed the judgment and holds it no defense for the railroad company that the consignee had no such certificate as the Iowa law required, because the act as regards such transportation is void. The ² Freight Tax cases are cited, to the effect that transportation is a part of commerce.

The forbidding introduction of liquors without license is held to be clearly a burden upon that which Congress, by not regulating, had provided should be free. It was admitted that the policy of the state of Iowa forbidding the sale of alcoholic beverages was adopted with a view to preserve the health and morals of its citizens from contamination, and is a measure adapted to that end. Nevertheless, such liquors are ordinary subjects of commerce, and the law an invasion of the exclusive domain of Congress.

¹ 125 U. S., 465 (March, 1888).

² 15 Wall, 232.

The effect of this decision is to place the authority of Congress wholly above the "sovereign" and "exclusive" police power of the state. This is probably an inevitable consequence of holding a paramount authority to regulate in Congress, and holding that such authority does not stop at the state's border, but accompanies the imported article to its destination within the state.

CHAPTER XII.

POLICE POWER PREVAILS AGAINST PROPERTY, BUT NOT AGAINST
COMMERCE.

The case of ¹ *Mugler vs. Kansas* ended the contention of liquor dealers and manufacturers that prohibitory laws are an unconstitutional attack on their property. Peter Mugler was prosecuted in Saline county, Kansas, for manufacturing intoxicating liquors without a permit. Ziebold & Hagelin, of Atchison county, in that state, were proceeded against to have their brewery in that county declared a nuisance and abated, also that they be enjoined from using it as a brewery except in accordance with Kansas laws. Mugler's case was decided against him in the state courts, and he procured a writ of error from the Supreme Court of the United States. Ziebold & Hagelin's case was transferred by them to the United States Circuit Court of Kansas and there tried and dismissed, and appealed by the state to the federal Supreme Court.

So there were two actions—one brought by Mugler to reverse the convictions against him in the state court, and the other brought by the state to reverse the action of the federal Circuit Court in dismissing its proceedings against the Atchison brewers. In both cases the question was the constitutionality of the Kansas constitution and legislation.

In 1868 that state had passed a law making it a misdemeanor to sell intoxicants without a license and requiring that all places where liquors were so sold should be deemed common nuisances and abated as such. In 1880 the state adopted an amendment to its constitution forever forbidding the manufacture and sale of intoxicating liquors in that state except for medicinal, mechanical and scientific purposes. To enforce this amendment, in February, 1881, the legislature of the state passed an act requiring the obtaining of a permit for the manufacture or sale of liquors for such purposes, and forbidding all other sales, and providing a system of penalties for violation of the act.

¹ 123 U. S., 623 (1887).

The law also provided that all places where such liquors were made, sold, bartered or given away contrary to the law, or where they were kept for that purpose, should be deemed common nuisances, and when they should be found to be such by any court of competent jurisdiction, the proper officer should be directed to abate and close them and destroy the liquor and vessels containing it.

Mugler had erected his brewery in Saline county, Kansas, in 1877, at a cost of \$10,000. It was still worth that sum for that use, but worth not more than \$2500 for any other purpose. He had continued operating it, after the enactment of the law, without a permit. He was a citizen of the United States, and had conducted the same place of business in the same manner ever since 1877. He appealed to the fourteenth amendment of the federal constitution to protect it.

In the other case, Ziebold & Hagelin's plant had cost \$60,000. It had been in operation about as long as Mugler's. When proceeded against as a nuisance under the state law the proprietors claimed the protection of the fourth and fourteenth amendments of the federal constitution and asked a removal of the case to the federal court, which was refused on the ground that the federal court had already ruled against the alleged right in *Bartelmeyer vs. Iowa and Beer Company vs. Massachusetts* and *Foster vs. Kansas*. The defendants, however, had the case docketed in the United States Circuit Court, and that court retained jurisdiction and refused to remand it, and at the trial dismissed it over the state's objection.

The Supreme Court in an opinion by Justice Harlan affirmed the action of the Kansas State Court and reversed that of the Circuit Court, and held the Kansas constitution and the statute to enforce it to violate no provision of the federal constitution so far as these two cases were concerned. Whether or not the brewers had a right to use their plants in making beer for exportation from the state was not decided.

Even Judge Field's dissenting opinion finds fault only with that portion of the law declaring the places a nuisance where the manufacture is carried on without permits, and directing the destruction of both the liquors and the containing vessels. He thinks this an unconstitutional deprivation of property. The answer of Judge Harlan that the law is prospective in its operation and relates only to places where the business shall be carried on in defiance of the state after its taking effect, seems to dispose of this objection if, as

Justice Field admits, the state had the general power to prohibit such use of property.

Two propositions not very distinctly advanced seem to have settled this case—one, that of *Barbier vs. Connelly*, that the fourteenth amendment takes away none of the police power of the state, and the other, established by an overwhelming agreement of state authorities, that forbidding the making or sale of intoxicants is a proper exercise of that power by a state, and if prospective in its operation requires no compensation for damages caused by it. The case becomes interesting as furnishing a basis for estimating the relative weight in the Supreme Court of limitations on state power derived from bills of rights, as compared with those derived from the transfer of power to the federal government.

In ¹*Pembina, Etc., Company vs. Pennsylvania* we have a new application of the rule of *Paul vs. Virginia*, that a state may exclude all corporations organized by other states or countries except those engaged in interstate commerce under the authority of Congress. A Pennsylvania tax of one mill on each dollar of capital stock of foreign corporations as a condition for opening an office in the state was upheld on the ground that since they could exclude the foreign company the Pennsylvania legislators might say on what condition it could come in.

In ²*Dow vs. Beidelman* the question of the power of the legislature of the state to fix rates of railroad transportation was passed upon. The question was found in this case to be uncomplicated with any other as to reasonableness or affecting interstate commerce or charter rights, and the power was upheld with no dissent. The discussion by Judge Gray of the dissensions in the court over other similar cases is extremely interesting, but he finally concludes that none of these disputed propositions arise in the case under consideration.

A case in which the same unanimity by no means prevailed was ³*Powell vs. Pennsylvania*. In 1885 Pennsylvania had passed an act that no person should make, or sell, or offer, or have in his possession for purposes of sale any article designed to take the places, or made in imitation of butter or cheese; that no action should be maintained for the price of such an article, and that the person found

¹ 125 U. S., 121 (March, 1888).

² *Id.*, 680 (April, 1888).

³ 127 U. S., 678 (April, 1888).

guilty of violating the act should be fined not less than one hundred or more than three hundred dollars or be imprisoned not more than thirty days or both.

Powell was indicted for selling two packages of imitation butter and for having in his possession for sale one hundred pounds of imitation butter.

It was agreed that he sold two packages and sold them as butterine and not as genuine butter, and that both were stamped on the lid in Roman letters half an inch long "Oleomargarine Butter." Powell offered to prove by Prof. Hugo Blanck that the latter saw the substance in the two packages made; that it was from pure animal fats, was clean and wholesome; that it contained the same elements as natural butter except that the latter has from three to seven per cent. butterine and the manufactured article only from one to two and a half; that the only effect of the additional butterine was to impart flavor and that the article sold was a healthful and nutritious article of food, as wholesome as butter from pure milk or cream.

He also offered to show that he was in the grocery business; that the two packages were a part of a large quantity of the article which he had on hand when the law was adopted and whose value would be destroyed if he was not permitted to sell it, and that the law was unconstitutional as depriving of property without compensation. All his offers of proof were rejected. He was found guilty and fined one hundred dollars. The sentence was affirmed by the Pennsylvania Supreme Court and a writ of error obtained from that of the United States.

In an opinion by Justice Harlan the sentence was affirmed and the law pronounced a valid exercise of the police power. The grounds given are dislike to interfere with any action of the state upon its own citizens, ostensibly for a public purpose, in preventing frauds and the sale of dangerous articles of food, and inability to say that such purpose was not subserved by the law. Almost in the same terms as used by Chief Justice Waite in *Munn vs. Illinois*, Justice Harlan says:

"If this legislation is unwise or oppressive, the appeal is to the legislature or to the people at the polls."

"Nevertheless, if the incompatibility of the constitution and the statute is clear or palpable, the courts must give effect to the former, and such would be the duty of the courts if the state legislature, under the

pretense of guarding the public health, the public morals, or the public safety, should invade the rights of life, liberty or property, or other right secured by the supreme law of the land."

Justice Field's dissenting opinion does not quite do justice to the position of the court in saying that the constitutionality of this legislation is rested solely on the fact that it pleased the legislature to pass it.

It is rested also on the fact that in the judgment of the court oleomargarine might be and perhaps generally was both dangerous and fraudulent, and the defendant had only offered to show the contrary as to his own article. To be sure, it would be very difficult for Powell to show that frauds and unwholesome compounds did not prevail outside of his factory, and the requirement of proof of such a negative does amount practically to an affirmation of anything the legislature might do, and would seem to furnish ground for Justice Field's complaint that this law missed the distinction between prohibition and regulation. It prohibits wholesome and undisguised manufacture as distinctly as it does the dangerous and fraudulent.

The doctrine in *Yick Wo vs. Hopkins* that a police law affecting property values must be reasonable as a regulation might, it would seem, have been invoked here, and the case of *People vs. Marx*, which reached a diametrically opposite conclusion, followed. We shall see this law and the interstate clause of the constitution arrayed against each other presently with different results.

In the matter of railroad regulation, we have seen in the case of *Wabash, St. L. & P. Ry. Co. vs. Illinois* greater stringency in applying to state legislation the limitations imposed by federal supremacy as compared with that shown in the Granger cases in applying the constitutional provisions as to the rights of property owners. The greater strenuousness of the court in defending the sovereignty of the central government than in defending individual or property rights has been often commented upon.

There seems to be something of such a contrast. The reason is doubtless to be sought in the fact that in applying the federal restrictions the court is following a new path, and has no guide but the language of the constitution and the fact, remarked by Chief

¹ 118 U. S., 356 (1886).

² 99 N. Y., 377 (1885).

³ 118 U. S., 557.

Justice Marshall, that it is a constitution which is to be interpreted. In the other case of individual rights the language of the constitution is expressly held to have been adopted, in view of the interpretation of those rights by the common law and their real extent to be determined by legal precedents.

In applying the commerce clause, too, the fear of mutually hostile action on the part of the states, which has been before mentioned as the real motive for the adoption of the constitution, not only fixed the color of all the early precedents on this subject and established a tradition, but has actively operated ever since, and with good reason as many state enactments show.

The interstate commerce clause of the federal constitution was however vainly invoked in the case of *Smith vs. Alabama*. The Supreme Court of that state had affirmed a judgment dismissing *habeas corpus* proceedings brought by Smith, a locomotive engineer, who had been arrested for driving a locomotive on a regular passenger train of the Mobile & Ohio Railway Company from Mobile, Ala., to Corinth, Miss., being sixty miles in Alabama and two hundred and sixty-five miles in Mississippi. At Corinth he took charge of a through train from St. Louis and brought it back to Mobile, drawing both ways express and mail matter and passengers destined for different states.

He had been committed to jail for violation of the provisions of an Alabama law requiring an examination and a license to authorize an engineer to engage in such an employment. It was admitted that he had not taken the examination nor procured a license for driving a locomotive, and that the law provided a penalty of not less than fifty nor more than five hundred dollars for engaging in such employment in that state without the license. The law was claimed to be void as being a regulation of commerce and so an infringement on the exclusive power of Congress.

The court in an opinion by Justice Matthews finds the law valid and that the state had such power over persons in its jurisdiction whose business was interstate commerce :

“ There are many cases where the acknowledged powers in the state may be exerted and applied in such a manner as to affect foreign or interstate commerce without being intended to operate as commercial regulations. If their operation and application in such cases regulate such commerce so as to conflict with the regulation of the same subject

¹ 124 U. S., 465 (1888).

by Congress, either as expressed by positive laws or implied from the absence of legislation, such legislation on the part of the state to the extent of such conflict must be regarded as annulled."

He cites *Sherlock vs. Alling* to the effect that the general test is whether the state law acts and is intended to act directly on interstate or foreign commerce or only indirectly in the accomplishment of some other genuine and proper purpose of local government.

He finds that contracts and liabilities of the carrier, though made in the actual process of interstate commerce, are governed by the law of the state where they are made, and if the state could secure civil remedies for a failure to provide a competent engineer and for damages resulting, it surely ought to be able, by way of provision in advance for the safety of its citizens, to apply reasonable penalties for the same purpose.

Perhaps Judge Miller's argument as to the need of a uniform regulation, advanced in the case of *Wabash, St. L. and P. Ry. Co. vs. Illinois*, would be available here also. There might, conceivably, be as much difficulty in getting a direct passage through different states, each exacting a different qualification to enable the engineer to make up his run, as there would be in getting through states prescribing different rates of transportation. Justice Bradley dissented without filing an opinion. It is impossible not to regret that he did not show the close resemblance in principle between this and the *Wabash* case and the difficulty of distinguishing them.

The sequel to *Mugler vs. Kansas* now appeared. The court in that case had refused to say whether a state could prohibit the manufacture of intoxicating liquors within its borders for purposes of exportation. J. S. Kidd was the owner of a distillery in Polk county, Iowa. In December, 1885, Pearson and Loughran made complaint against him that his distillery was used for the unlawful manufacture and sale of intoxicating liquors and should be abated and such use forever enjoined.

The Iowa law was substantially the same as that of Kansas under consideration in *Mugler's* case. The petition for injunction alleged, after reciting manufacture and sale for unlawful purposes in the distillery, that Kidd there

"manufactures, keeps for sale, and sells within this state and at the place aforesaid intoxicating liquors to be taken out of the state and

¹ 93 U. S., 99.

² *Kidd vs. Pearson*, 128 U. S., 1.

there used as a beverage and for other purposes than for mechanical, medicinal, culinary and sacramental purposes, contrary to the statutes of Iowa."

Kidd answered that he held a license to manufacture and sell intoxicants, except as by law prohibited, and had at all times complied with the law.

At the trial it appeared that no sales were made in the state of Iowa; that all the liquors were for exportation and were sold outside of the state. A decree was entered abating the distillery as a nuisance and enjoining any further manufacture of intoxicating liquors in it. This decree having been affirmed by the Iowa Supreme Court, a writ of error was obtained from Washington. The state court had held that the statute had permitted the sale of imported liquors in the original packages, but that intoxicating liquors might be made in the state only for the purposes allowed by the law, and transportation and sale beyond the state was not among them, and that as thus construed the law did not conflict with the federal constitution.

The federal court found two questions in the case :

First. Did the statute so construed conflict with the commerce clause of the federal constitution ?

Second. Was it in violation of the fourteenth amendment as depriving of property without due process of law ? The last question is held to be disposed of by the case of *Mugler vs. Kansas*.

The other question is elaborately discussed by Justice Lamar, though he declined to admit there was any difficulty in the case. His proposition is that no power of Congress may attach to that which has no lawful existence in the state ; it having been held that the state may without infringing on the liberty of its citizens forbid the manufacture, and having done so that disposes of the matter and there is no question of commerce concerned.

The contest in ¹*Coe vs. Errol* between the taxing power of the state and the commerce clause and the opinion of Justice Bradley in that case are referred to with the remark that the police power of a state is as full and plenary as the taxing power.

The insufficiency of logic in this matter to establish a practical rule has never been better shown than by a comparison of this case with that of ²*Bowman vs. C. & N. W. Ry. Co.* The police power

¹ 116 U. S., 517.

² 125 U. S., 465.

wins at this end as completely as it was overthrown at the other. That case held that the police power of the state of Iowa under this same law could not interfere with the bringing of intoxicating liquors into the state by attaching any conditions whatever to such coming. That is to say: Citizens of other states had an indefeasible right, as against the state authorities, to find a selling place for such articles in Iowa. By this case the making and taking to other states and there selling the same articles is held to be under the control of the state authorities. That is, those citizens of other states who have so sacred a right to sell liquors in Iowa that all the state's authority may not even affect it, have no right to buy any there for any purpose and the state may absolutely forbid its being made there for them, all simply because Congress is authorized by the federal constitution to regulate commerce.

In ¹*Kimmish vs. Ball* the police power prevailed again over the commerce clause. We have seen in ²*Railroad Company vs. Husen* a Missouri statute forbidding the introduction of southern cattle during the warm months set aside because it made no distinction between sound and diseased stock. In *Kimmish vs. Ball* nearly the same law of the state of Iowa is upheld upon some distinctions. It had been discovered that there was a real danger to be apprehended from healthy southern cattle during the warm portions of the year.

In ³*Minneapolis & St. Paul Railway Company vs. Beckwith*, in reaffirming that a railway company which has failed to fence its line may be held liable for twice the value of stock injured by passing trains, the court asserted once more that corporations were protected as persons by the fourteenth amendment, and that the amendment does not limit the subject or extent of the state's police power. In the case of ⁴*Nashville, C. & St. L. Ry. Co. vs. Alabama* the case of *Smith against Alabama* was reaffirmed, with the additional feature that requiring railways to pay the expenses of examinations of employees under a state statute is not an unconstitutional deprivation of property. In ⁵*Eilenbecker vs. District Court, Plymouth county*, the Iowa liquor laws came back again. *Eilenbecker* had been in prison for contempt in not obeying an injunction against his selling intoxicating liquors. A rule

¹ 129 U. S., 217 (Jan., 1889).

⁴ 128 U. S., 96.

² 95 U. S., 465 (1877).

⁵ 134 U. S., 31 (1890).

³ 129 U. S., 26 (1889).

issued; there had been a hearing without a jury, he was found guilty of contempt and imprisoned. This proceeding was found to be in no respect a denial of equal protection of the laws; the right to punish for contempt is found to be inherent in all courts of superior jurisdiction, and

“to accomplish such a purpose as a suppression of the liquor traffic, the legislature is warranted in calling on any or all established powers of the courts.”

In *Chicago, M. & St. P. Ry. Co. vs. Minnesota*, the process of limiting the principles of the Granger cases continued. In 1887 the legislature of the state of Minnesota established a railroad commission and authorized it to establish rates of transportation. It required carriers to publish rates of tariff, which were not to be changed without ten days' notice.

Such charges were to be submitted to the commissioners, and if found unreasonable they should change them and should ascertain a just and reasonable charge which the carrier should adopt, and if the latter should not do so in ten days the commission should publish and post it in all stations of the carrier and it should be unlawful to charge any other rate than the one prescribed. The commissioners were empowered to obtain writs of mandamus and of injunction to put rates into effect and to stop all business of the carrier until they were complied with.

June 22, 1887, the Boards of Trade Union of Faribault, Farmington, Northfield and Owatonna complained that the charges of the railway company for carriage of milk from those places to St. Paul and Minneapolis were unjust, being four cents per gallon from Owatonna and three cents from the other places. The commissioners forwarded a copy of the complaint to the company on June 29, and required an answer by July 13. On that day the parties appeared, and the complaint was investigated. The commission found the rates unreasonable, and that two and a half cents per gallon was a sufficient charge. The company was notified, as the law required, in what respect its rates were unreasonable, and of the finding to which it was expected to conform. It refused. On October 13 the commissioners published and posted their tariff, and on December 6 made application by the attorney-general to the Supreme Court of the state for writ of mandamus against the railroad company to put the reduced rate into effect.

¹ 134 U. S., 462.

The application set forth the proceedings; that the former rate was unreasonable and excessive, and more than was charged elsewhere in the state for like service, and unjust discrimination. An alternative writ was issued, and a return made by the company that neither legislature nor commission had authority to fix rates; that the owners of the road alone had such authority, and the attempt of the commission to do so was taking property without due process of law.

It claimed that its own rates were reasonable, and any attempt to reduce them would deprive it of reasonable compensation for its service. At the hearing the company asked for a reference to take testimony as to the reasonableness of its charges. This was refused, and a peremptory writ of mandamus issued establishing the rates fixed by the commission and awarding costs against the company.

The case was taken to the federal Supreme Court. The state court had construed the statute to mean that the commission's rates were final—not advisory nor *prima facie* reasonable, but conclusive—and held the act valid on such construction.

The railway contended that it held by charter the right to make its own rates of toll. The federal court, however, held that the charter rights of the company were all held subject to any valid legislation of the state.

As to the claim, also made by the company, that the acts of the commission were an unconstitutional deprivation of property without due process of law, the court held itself bound by the construction of the statute made by the state court, that the orders of the commission were final and conclusive if the law was valid, and says:

"It deprives the company of its right to an investigation by due process of law under the form and with the machinery provided by the wisdom of successive ages for the investigation judicially of the truth of the matter in controversy, and substitutes therefor, as an absolute finality, the action of a railroad commission, which, in view of the powers conceded to it by the state court, cannot be regarded as clothed with judicial functions or possessing the machinery of a court of justice."
. . . "The question of the reasonableness of a rate of charge for transportation by a railroad company, involving as it does the element of reasonableness both as regards the company and as regards the public, is eminently a question for judicial investigation, requiring due process of law for its determination."

Justices Bradley and Gray and Lamar dissent. Justice Bradley finds it a practical overruling of the Granger cases, all of which had asserted his own doctrine that the determining of the reasonableness of rates is a legislative question.

The concurring opinion of Judge Miller is interesting. He thinks the cases should be reversed because of the refusal of the state court to hear evidence as to the reasonableness of the company's rates. He thought it the province of the legislature to fix rates, but not arbitrary nor unreasonable ones. He thought that when an unreasonable rate was established by state authority the remedy was by a bill in equity to set aside the unreasonable action.

The "commercial power," to use the established phrase of the court, came in collision with the police power once more in ¹ *Leisy vs. Hardin*, and this time held the field.

Plaintiffs, citizens and residents of Illinois and constituting the firm of Gus Leisy & Co., replevined from A. J. Hardin, marshal of Keokuk, Iowa, and *ex officio* constable, by an action in the Superior Court of that city, one hundred and twenty-two one-quarter barrels, one hundred and seventy-two one-eighth barrels and eleven sealed cases of beer. He had taken it on behalf of the state of Iowa in accordance with the provisions of Iowa statutes.

On agreement of facts, a jury being waived, the court found that plaintiffs were a partnership, citizens of Illinois, located at Peoria, engaged in brewing and selling beer in Iowa and Illinois; that this beer was made by them, put in kegs and cases at Peoria, sealed up and a United States revenue stamp of the customs district where Peoria is located placed on each package, and to open them the seals must be broken; that they shipped the property from Peoria to Keokuk; that it was there offered for sale in original packages in a building owned by one of plaintiffs by their agent; that defendant seized the property on a search warrant, issued by a justice of the peace in Keokuk upon a sworn complaint charging the keeping of intoxicating liquors, in violation of Iowa laws; and further finds that the laws mentioned were unconstitutional and void; and that on July 2, 1888, the plaintiffs filed their petition claiming ownership of the beer, and that the warrant under which it was taken was void, as being in violation of section 8, article i, of the constitution of the United States, and, filing their bond in replevin, obtained the beer.

¹ 135 U. S., 100 (April, 1890).

From the foregoing facts the court finds the following conclusions :

" That plaintiffs are the sole and unqualified owners of the property, and entitled to the possession of the same and judgment for one dollar damages for their detention and costs of suit. That so much of chap. vi, tit. ii, Code 1873, and the amendments thereto, as prohibits such sales by plaintiffs as were made by them is unconstitutional, being in contravention of section 8, art. i, of the constitution of the United States."

The judgment on this finding was reversed by the state Supreme Court, and judgment rendered against the plaintiffs on their replevin bond for the value of the beer.

The Iowa laws have been somewhat described in the account of the cases of *Bowman vs. C. & N. W. Ry. Co.* and *Kidd vs. Pearson*. No one in person or by agent might manufacture or sell intoxicants except for medicinal, mechanical, sacramental or culinary purposes, and all liquors intended for other purposes and vessels containing it are declared a nuisance and directed to be seized and destroyed.

The Supreme Court, in its opinion by Chief Justice Fuller, overrules the License cases on the ground that Chief Justice Taney did not sufficiently distinguish between

"the exercise of power over commerce with foreign nations and among the states and the exercise of power over purely local commerce and local concerns."

He relies on the opinion in *Bowman vs. Railway Company*. That case held that intoxicating liquors could lawfully come in despite any legislation of the state. Applying *Brown vs. Maryland*, he thinks the right to import involves the right to sell, and so holds the forbidding of the sale unconstitutional.

The police power, in its own admitted field, where, as Judge Miller says,

¹ "the legislature has the right to call on all powers of the court at common law or in chancery for the suppression of this objectionable traffic,"

had now come in collision with the "commercial power," and

¹ *Eilenbecker vs. Dist. Court*, 134 U. S., 31.

had to give way. The commercial power in its "dormant condition," as Chief Justice Marshall calls it, proves the stronger.

It would seem that an admission of the impossibility of making any but a practical division of the field of government between these two contending powers, and a declaration of the paramount character of that of Congress when it should become necessary to apply it, such as Taney had made in the License cases, would have been more judicious and quite as judicial. Subsequent legislative action by both Congress and the states and later decisions seem clearly now to show this. The determining on what conditions beer should be sold in the towns of Iowa would certainly seem more of a local than an interstate or international matter.

If it be said that with permission to the states, in the absence of Congressional action, to exclude intoxicants they might exclude other things also and stop commerce, it may be answered that no such alarm was felt in the case of *Kidd vs. Pearson*. Nobody grew afraid that, if the state was permitted to stop the making of liquors for export, while permitting them to be made for certain home uses, it might go on and forbid the making of other things for export, either generally or to particular states, and so put an embargo on outgoing commerce.

The fourteenth amendment can be relied upon to prevent any such promiscuous interference with the rights of the people. Besides, we have section 2 of article iv of the constitution, that the citizens of each state shall be entitled to all the privileges and immunities of citizens in the several states. Chief Justice Marshall had given the true precedent in ¹*Wilson vs. Blackbird Creek Marsh Company*.

Justice Gray in his dissenting opinion, by the abstract he gives of the ²License cases, shows even more clearly than those opinions themselves how the position had changed since 1847. The real question then under discussion was not the validity of the laws—all agreed on that—but whether Congress had the power to act if it wished; whether it was not so exclusively a matter of state regulation that Congress could not touch it. Now the question was whether it was not so exclusively a matter of commercial regulation that the state must keep hands off, and the latter was the conclusion.

While Judge Gray cites some cases holding that the police power

¹ *2 Pet.*, 245 (1829).

² *5 How.*, 504 (1847).

excludes that of Congress wherever the former really obtains, he himself makes no such claim. He ventures no more than to take Chief Justice Taney's position and that of Chief Justice Marshall in *Wilson vs. Blackbird Creek Marsh Company*, that the states may act, but not contrary to the express will of Congress. He hardly suggests that there ever was a question as to which should prevail in a real conflict.

At the same term, in ¹*Minnesota vs. Barbour*, another police law was held bad as an infringement on the domain of Congress. Henry E. Baker was convicted before a justice of the peace in Ramsey county, Minnesota, of selling for food one hundred pounds of fresh beef, part of an animal killed in Illinois that had not been inspected and certified healthy before slaughter, as required by Minnesota statute. He procured a writ of habeas corpus from the United States Circuit Court, and was discharged on the ground that the Minnesota statute was an infringement on the constitution of the United States. The state authorities appealed.

The law prohibited any sale of fresh meat for human food unless within twenty-four hours before its slaughter it was inspected and found in a suitable condition and a certificate to that effect given by the state inspector. The court held that it was not a matter of common experience of which it would take judicial notice that animals destined for food required to be inspected on foot just before being slaughtered. The law was held bad as being an effort to exclude meats from other states and not warranted by any necessity of police.

At the same ²session the court refused to issue a writ of habeas corpus for Kemmler. He had been condemned in New York to suffer death by an electric shock. He claimed that this was an unconstitutional punishment, but the court declined to hear him.

In the case of ³*Rahrer* an application for a writ of habeas corpus was made in the Circuit Court of the United States for the District of Kansas by Charles A. Rahrer, claiming that he was detained by the sheriff of Shawnee county in that state in violation of the federal constitution. It appeared that Maynard & Hopkins, wholesale liquor dealers of Kansas City, in June, 1890, appointed Rahrer their agent in Topeka, Kan., to sell their liquors in the "original packages" in which they were shipped, and in July of that year

¹ 136 U. S., 313 (1890).

² *Id.*, 436 (1890).

³ 140 U. S., 545 (1891).

shipped to him at that place a carload of liquors. August 9, 1890, he sold from that carload a keg of beer which was a separate and distinct package as originally shipped, and also on that day he sold a pint bottle of whiskey, which was a "separate and distinct package enclosed in the original wooden box in which it was shipped." Rahrer owned none of the liquor, but was simply agent for Maynard & Hopkins.

Rahrer had been informed against properly and a warrant issued and he was then held by the sheriff. He was not a druggist and had no permit as such and had applied for none. The Circuit Court discharged him and the state authorities appealed. The act of Congress known as the "Wilson Bill," providing that liquors from other states should be subject on their arrival to the operation and effect of the laws of the state into which they were brought, enacted in the exercise of its police powers, "in the same manner and the same extent as if produced in that state," and should not be exempt by reasons of being introduced "in the original packages or otherwise," took effect one day before this sale took place. The Supreme Court held that Rahrer must answer to the state law.

Chief Justice Fuller describes the police power as

"the power to impose restraints and burdens upon persons and property in the conservation and promotion of the public health, good order and prosperity. It belonged originally to the states, has never been surrendered to the government nor directly restrained and is essentially exclusive."

Then Justice Bradley's position in Civil Rights cases, that the fourteenth amendment did not extend the sphere of congressional legislation, but only put a negative on certain action by the states and authorized Congress to enforce that negative as endorsed :

"In short, it is not to be doubted that the power to make the ordinary regulations of police remains with the individual states and cannot be assumed by the national government, and in this respect it is not interfered with by the fourteenth amendment."

After finding this police power of the states thus broadly defined exclusive, he finds the national power to regulate commerce also exclusive. But this time he puts this qualification into the description of national power: it is exclusive "when the subjects of that power are national in their nature." He, however, immedi-

ately abandons this position. The constitution, he says, by granting control of interstate commerce, made it free except as Congress shall impose restraint upon it, and the failure of Congress to regulate is an expression of will that commerce shall be free and authorizes no restraint by the states:

"If a law, passed by a state in the exercise of its acknowledged powers, comes into conflict with that will, Congress and the state cannot occupy the position of equal opposing sovereignties, because the constitution declares its supremacy."

He asserts a distinction in kind between "commercial power" and "police power," which, though

"quite distinguishable when they do not approach each other, may yet, like the intervening colors between black and white, approach so nearly as to perplex the understanding as colors perplex the vision in marking the distinction between them."

He quotes at length from Judge Catron in the License cases, but apparently without perceiving that Judge Catron, while holding to a concurrent authority of the states with Congress, thought that such authority could not be a portion of the police power, because, as he saw, the police power could not be at once sovereign and concurrent; and if he was going to make it a sovereign and "exclusive" power, as Chief Justice Fuller here defines it, he must keep it entirely out of that region where laws of Congress are supreme.

It would seem that Chief Justice Fuller and Justices McLean, Catron and Story were making a distinction where none exists. Force is force, and when applied at the same time to the same object for the same ends it does not avail much to call it police power when employed by state authorities and commercial power when applied by federal officers. Either one is sufficiently like the other that, in order to be effective, the other must be overcome or excluded.

Chief Justice Taney's perception, in spite of his prejudices and surroundings, of the identity and concurrent nature of these powers and of the necessity of federal supremacy is a grand triumph of logic and analysis. Chief Justice Fuller, in making them distinct in nature, has, while exalting the power of the state in words, made it subject wholly to that of the federal government. He finally makes of his "exclusive" state power one that goes or

stops as Congress wills. The justices who had dissented in *Leisy vs. Hardin* were justified in concurring in the decision but not in the reasoning of the Chief Justice.

In ¹ *Budd vs. New York* the question in the *Granger* cases again came up with substantially the same result, the state law of New York fixing a maximum charge for elevator rates being sustained in the federal Supreme Court as it had been by the New York Court of Appeals. The noticeable thing now is the extent to which such statutes had prevailed, and the extensive citation of them and of state courts sustaining them which Judge Blatchford gives in the opinion of the court. They are from Ohio, Illinois, Alabama, Wisconsin, Kentucky, Pennsylvania, Massachusetts, Indiana, Nebraska, Mississippi, Maryland and New Jersey.

He holds that what was said in the case of *Chicago & St. Paul Railway Company vs. Minnesota*, that a hearing must be allowed as to rates, applies only to those fixed by commissions and not to those fixed directly by the legislature; but he does not venture to rest the case on this distinction, but rather upon the fact that no effort was made to show that the rates established by the state were unreasonable. Judge Brewer's dissenting opinion did not attack the reasonableness of the rates, but the fundamental right to establish any.

He thinks it an invasion of rights of property, as the monopoly, if there was one, was not created by law, and could be broken at any time by any one who chose to engage in the business of elevating grain:

"That property which a man has honestly acquired he retains full control of, subject to these limitations: First, that he shall not use it to his neighbor's injury, and that does not mean that he must use it for his neighbor's benefit; second, that if he devotes it to a public use he gives to the public a right to control that use; and, third, that whenever the public need requires the public may take it upon payment of due compensation."

It would seem that Justice Brewer at that moment recognized no right to take property in an emergency, no right of regulation for the sake of public order and convenience, no right of taxation, no general government control.

There is other authority as to the nature of property. Franklin was hardly a radical, but he ² wrote in 1783:

¹ 143 U. S., 517 (1892). ² Letter to Robert Morris, December 25, 1783.

"All property, indeed, except the savage's temporary cabin, his bow, his matchcoat and other acquisitions absolutely necessary for his subsistence, seems to me to be the creature of public convention. Hence, the public has the right of regulating descents and all other conveyances of property and even of limiting the quantity and uses of it."

It is not by accident or mistake that such control of the uses of property as is reasonable—that is, as, in the judgment of the court, the public need really requires—has been upheld.

In *People vs. Squire* the application of legislative authority to electricity and electrical lighting was upheld. Squire was commissioner of public works in the city of New York. The electrical lines asked a mandamus to compel his permission to excavate and lay wires. The mandamus was refused by the New York courts, and the company brought the case to the federal Supreme Court.

In 1882 the company was incorporated for the purpose of constructing and maintaining telegraph and telephone lines and electric conductors for illumination under the sidewalks and streets of New York and Brooklyn, and owning the franchise for such construction and owning and disposing such real and personal property as was needed for the purpose. The telegraph law allowed such companies the use of highways provided there was no obstruction. A further provision required the obtaining of license before laying any line in city or village streets.

April 10, 1883, the common council of New York city gave the company permission to lay its lines underground through the city, subject to certain restrictions. On April 16 the company accepted the franchise and filed a map, as required, indicating the space and localities which it would occupy. A considerable sum was expended in preparations for work, but it did not get ready to excavate until July, 1886, when it applied for a permit to do so, which was refused, because in 1885 the legislature had enacted a law requiring the approval of a board of commissioners of electrical subways before such excavating was done, and such approval had not been obtained.

The company then brought its mandamus, claiming that the act of 1885 had no application to it under its charter and the agreement of 1883. The court held that the company was subject to the latter acts, that it had no absolute right, but only a qualified one, subject to the state laws. A requirement that the company pay the

¹ 145 U. S., 880 (1892).

expense of the commissioners' examination was sustained as a mere rule of the public service and not taxation.

That a state may by law change the rate of interest that a judgment is bearing was determined by a divided court in ¹ *Morley vs. Lake Shore & Michigan Southern Railway Company*. One Morley had obtained, January 26, 1878, judgment for \$53,184.88 against the railroad company for guaranteed dividends on a stock on another road which had been absorbed by it. This judgment was contested in higher courts of the state of New York, but finally affirmed, May 21, 1881, and an execution issued for the amount and seven per cent. interest.

The defendant company paid the amount with interest at seven per cent. per annum up to January 1, 1880, and six per cent. after that, and applied to have the judgment satisfied on the ground that on January 1, 1880, interest had been reduced by law in New York from seven to six per cent. per annum. The trial court refused this, but the Court of Appeals reversed such action, held the payment sufficient and the judgment discharged.

This action of the Court of Appeals was taken for review to the Supreme Court of the United States. The New York Court of Appeals had held that there was no special reference to a judgment like this in the law changing the rate of interest. The United States Supreme Court accepted that construction. So construed, did the law impair the obligation of the contract? Plaintiff's claim was that while the contract stipulated no interest, it was made under a law providing for seven per cent. per annum after payment became due, and that such law was a part of the agreement. It was also claimed that the judgment itself was a contract. Both contentions were denied.

Justice Harlan's dissenting opinion, with which Justices Brewer and Field concur, argues that the cases, as to what changes may be made in the law relating to remedies on contracts, sufficiently establish that this action of the state was an impairment of the obligation of one.

*Yesler vs. Board of Harbor Line Commissioners*² is a reminder of Chief Justice Shaw's decision as to harbor rights in *Commonwealth vs. Alger*, and *Minneapolis Railway Co. vs. Emmons*³ is a

¹ 146 U. S., 162 (1892).

² *Id.*, 646.

³ 149 U. S., 364.

strong reminder of *Thorpe vs. Rutland*, and both serve to show how the old questions were brought back by the adoption of the fourteenth amendment, and the reference of these matters to the federal Supreme Court. The two cases are decided precisely on the lines of those old landmarks of the police power.

CHAPTER XIII.

GOVERNMENT VERSUS LIBERTY IN THE SUPREME COURT.

An examination of the police power involves the following of an extended discussion in nearly every important case, for it is still true, as it was in the beginning, that the raising of a serious question over this matter means a divided court and a judicial debate. It is not to be forgotten that we are here engaged with the very subject and department of law in which Bentham so vehemently assailed Blackstone.

"A task of no less intricacy was here to be traveled through than that of adjusting the claims of those two jealous antagonists, liberty and government."¹

A little investigation will satisfy any one, as it satisfied Bentham, that

"a more invidious ground is scarcely to be found anywhere within the field of politics."

So it comes that scarcely an important decision, as to the limits of the legislature's power in any direction where its employment is at all new, as to which the judges do not disagree.

Not, however, in the case of *New York & New England R. R. Co. vs. The Town of Bristol*.² The railroad company appealed from a decision of the state court upholding a law authorizing the railroad commissioners to peremptorily require under certain circumstances grade crossings to be removed and replaced. The case was not only affirmed but dismissed as raising no new question with Judge Miller's remark in *Davidson vs. New Orleans*,³ that the fourteenth amendment could not be used

"as a means of bringing to the test of the decision of this court the abstract opinions of every unsuccessful litigant in the state courts of the justice of the decision against him and of the merits of the legislation against him on which such a decision may be founded."

¹ *Fragment on Government*, Chap. iv, Sec. 15.

² 161 U. S., 556.

³ 96 U. S., 97 (1877).

The action of the court in declining to look into the claim of unreasonableness, put forward on behalf of the company, indicates that a *bona fide* exercise of the police power whose reasonableness, and, therefore, whose title to be set above the constitutional guarantees of individual rights, has been affirmed by the judiciary of the state of its origination, is also above such guarantees in the federal constitution. By the terms the chief justice uses, he confines such a prerogative, as did Justice Harlan in *New Orleans Water Works Company vs. Rivers*, to provisions for the safety, health and morals of the people.

He does not here any more than in *Rahrer's* case set the police power above the federal control of commerce. The lawyers approached the court on that side and found much comfort. In the application of the fourteenth amendment, however, there seems to be an increasing tendency to restrict it by means of the common law precedents. Even as to the commerce clause, we have just been told by the latest examiners of that subject that the validity of state legislation affecting commerce must ultimately become a question of the extent of the necessity in which its laws have their origin.¹

It is impossible, however, not to feel the force of Justice Gray's complaint in his dissenting opinion in the original package case that the court set commerce above the morals, health and safety of the people. It seems to set commerce above personal and property rights.

In *Lawton vs. Steele*,² Chief Justice Fuller found himself compelled to dissent from a slight extension of his own doctrines just examined. It was applied to game laws instead of public health, morals and safety. Steele was a game and fish protector appointed by the fish commissioners of New York. He seized a quantity of Lawton's fish nets on the ground that they were maintained on state waters in violation of law and destroyed them as a public nuisance. Lawton sued for their value.

The nets when taken were for the most part in actual use and the rest had been just recently. This was in violation of the state law, which provided that any net for taking fish maintained upon any waters of the state was a public nuisance, and every game constable was directed to summarily destroy it, and no action was to be maintained against any person for its destruction. The act

¹ Guthrie, *14th Amendment*, 76.

² 152 U. S., 133.

forbade catching any game fish in the state waters otherwise than with a hook.

This law was assailed as depriving the citizen of his property without due process, as an undue restraint on liberty and an interference with the maritime jurisdiction of the United States. The trial court sustained this contention as to the first point and gave Lawton judgment for the value of his nets. The Court of Appeals, however, reversed this, sustained the law as a valid exercise of police power in the state and dismissed the action. To reverse this judgment the case was taken for review to the United States Supreme Court. In an opinion by Justice Brown the act is upheld as within the police power of the state. He finds not only that the state may interfere on behalf of the public health, safety and morals, but

"wherever the public interest demands it, and in this particular a large discretion is vested in the legislature to determine not only what the interests of the public require but what measures are necessary for the protection of such interests."

He proceeds to investigate the bounds of this discretion just as any other judge does, by looking at the decisions. He finds in *Rockwell vs. Nearing*,¹ a law providing for the summary sale of trespassing animals was held bad as a deprivation of property without due process of law. In that case an examination of the precedents had shown this not to be an ordinary way of punishing or guarding against trespasses by animals, so the constitutional provision ruled it out. The protection of game by means of a forfeiture and summary destruction of poaching appliances is a common exercise of governmental power, and so the constitutional protection of private property is no bar to its use in this case and he finds the law good.

He cannot forbear, however, expressing some scruples about the summary destruction of the nets without a trial. As to this, the precedents are extensively considered together. The refusal of the court to apply the constitutional provisions for trial by jury to petty offenses is cited, and the conclusion is reached that actual injustice can hardly occur under this act. If a party's property is wrongly taken he can replevin or sue for damages.

Chief Justice Fuller and with him Justices Field and Brewer dis-

¹ 35 A. Y., 302.

sent on the ground that the police power rests upon necessity and the right of self-protection, but private property cannot be arbitrarily invaded under the mere guise of police regulation, nor forfeited for alleged violation of law by its owner, nor destroyed by way of penalty inflicted upon him without opportunity to be heard. The chief justice suggests that the utmost limit of police power here was to sequester the nets from use till their unlawful character should be ascertained in some sort of a hearing.

The chief justice deprecates the use in the court's opinion of arguments as to the smallness in value of the property destroyed. It would seem that if police regulations are to be required to be reasonable, if the extent of police interferences with private rights as well as commerce are to be proportioned to the public emergencies, such consideration as the insignificance of the property involved should be allowed. That seems to be the point of view of most of the cases cited by Justice Brown.

If the state may take life, property, liberty and all to suppress insurrection, repel an invasion or meet a sudden danger by fire or flood, may it not also take a few nets if wrongfully employed, and it is reasonably necessary for the public interests, and do so in a like summary manner?

In *Bremen vs. City of Titusville*,¹ ten dollars was exacted of plaintiff for taking orders for crayon portraits, with frames for the same, to be manufactured in an adjoining state. The court held that this was a tax and not a police regulation and void as a burden on interstate commerce.

In *Reagan vs. Farmers' Loan and Trust Company*,² the question of railroad rates arose again. The state of Texas in 1891 had established a railroad commission and authorized it, and made it the duty of such commission to adopt all necessary rates, charges and regulations to govern and regulate railroad freight and passenger tariffs, to correct abuses and prevent unjust discriminations and extortion in rates and enforce the same by having proper penalties inflicted as prescribed in the law.

Something of a task, even when confined to a single state and one for whose accomplishment a number of more specific powers were conferred—to classify lines of road and kinds of freight; to establish reasonable rates in whole or in part as they should see fit. Notice and hearing for all railways concerned was required before

¹ 153 U. S., 289 (1894).

² 154 U. S., 362.

adoption of any rate for such road, and the rate fixed was to be deemed conclusive as between the company and shipper. Any company dissatisfied with it might file a petition in any court of competent jurisdiction in Travis county, Tex., to have the rate or regulation set aside, and the commissioners and state attorney-general were to answer and the case be tried at once.

The commission established certain rates of tariff for transportation, and in April following the Farmers' Loan and Trust Company commenced action in the federal Circuit Court in Travis county, Tex., to set them aside and enjoin the commissioners from attempting to enforce them or any others.

It was in possession of the International & Great Northern Railroad by a receiver appointed in an action to enforce \$15,000,000 of bonds of the company. It alleged that under the rates established the income of the road would be reduced below the amount necessary to pay interest on its indebtedness, which was three-fifths its cost, and the rates were unjust and unreasonable and the law unconstitutional.

The commissioners first answered and took some evidence, then withdrew their answers and demurred to the petition. The court found against them on the demurrer and perpetually enjoined them from proceeding in any manner under the law. They appealed to the federal Supreme Court, claiming: First, that the action would not lie because brought against the state; second, that their rates were conclusive, and, third, that such rates were reasonable and just, at least so far as the facts alleged indicated.

The first objection was promptly disposed of on Chief Justice Marshall's authority in *Osborne vs. Bank*,¹ and all the cases following it since, holding that where private rights are wrongfully invaded a claim to be acting by state authority on the part of the defendant does not prevent jurisdiction of the federal courts.

The Granger cases² are held to establish the right of the state by its legislature to fix transportation rates that shall be *prima facie* reasonable; the Railroad Commission cases and others since, especially *Chicago G. T. Ry. Co. vs. Wellman*,³ to determine that such rates must be set aside if shown to be unreasonable.

Judge Brewer in the opinion finds that the rates fixed were objected to as a whole; that the court cannot fix rates, but only

¹ 9 Wheat., 738.

³ 143 U. S., 339.

² 94 U. S., 155.

say whether those proposed are reasonable or otherwise, and he finds that the facts admitted by the demurrer show that the rates established did not pay the stockholders anything, nor even the interest charges on borrowed capital, which was about three-fifths of the cost of the road; that the reduction was about one-fourth from former rates and was unreasonable. He, therefore, set aside the rate but also the perpetual injunction. He finds the establishment of a too low rate is a denial of equal protection of the laws to the company and those whose capital was invested in it, but thinks the commissioners must be permitted to try again.

In Connecticut¹ a pharmacist licensed under state laws to follow that occupation found himself, in 1890, interfered with by a liquor law, forbidding all sales of intoxicants except under certain conditions and requiring every druggist to obtain a permit, and making the granting of such permit discretionary with the county board. The plaintiff Gray claimed that the law deprived him of privileges and immunities as a citizen of the United States. Alcoholic preparations being essential to his business, the law made that business subject to the arbitrary discretion of the licensing board. The court by Justice Field disallowed his claim without much discussion and without attempting to distinguish his case from that of *Soon Hing vs. Crowley*.²

In *Hooper vs. California*,³ a law making it a misdemeanor to procure insurance of a foreign company which had not complied with the law of the state was upheld and found to be no interference with interstate commerce.

In *Emert vs. Missouri*,⁴ a prohibition of peddling without a license was held to apply to one selling sewing machines made in another state, but which he had with him and was delivering them as he sold them. The logic which distinguishes this case from *Brennan vs. Titusville*,⁵ the one holding that such a license law is not constitutional as applied to a canvasser for portrait orders, the goods to be made outside of the state, is notable.

In *Plumley vs. Commonwealth of Massachusetts*,⁶ the oleomargarine question, over which the state courts divided, came up once more. The state of Massachusetts in 1891 enacted a law that no one should sell, offer or keep for sale any oleomargarine colored in

¹ *Gray vs. Conn.*, 159 U. S.

² 113 U. S., 703.

³ 155 U. S., 648 (1894).

⁴ 156 U. S., 296 (1894).

⁵ 153 U. S., 289.

⁶ 155 U. S., 461.

imitation of butter, with a proviso that the law should not interfere with sale of an uncolored article in a separate and distinct form, such as would advise the purchaser of its character. Inspectors were authorized and required to make complaints and enter all places where butter and its imitations were sold and take suspected specimens for analysis.

Benjamin A. Plumley, convicted under this act, sought a writ of habeas corpus in the state Supreme Court, claiming that he only offered for sale ten pounds of pure animal fats designed to take the place of butter; that it was made at Chicago by a firm of which he was agent, and that he offered it in a package in which it was sent; that the article and all made by the firm was wholesome, nutritious and palatable and a regular article of commerce; that the Massachusetts law violated both the fourteenth amendment and the commercial clause of the federal constitution and was repugnant to congressional legislation on the same subject.

The state Supreme Court found that oleomargarine is naturally of a light, yellowish color, and that the material in question had been colored to imitate butter; that the applicant had offered to prove his assertions as to the article, where it was made and his agency to sell it in original packages in Massachusetts, and was not permitted; that he had complied with the act of Congress as to its sale and it was plainly stamped as oleomargarine. His sentence was held valid and he remanded to custody.

By writ of error the case came to Washington. Justice Harlan for the court finds that the act of Congress as to oleomargarine was not intended to regulate interstate commerce, but to lay a tax, and, like other federal tax laws, has only that effect, and takes no authority away from the state. He finds such authority in the state over foods and their purity. He easily distinguishes the various cases, in which police objects were mere pretenses, from this one. But when he comes to *Leisy vs. Hardin*, he can only say that in that case the article offered was genuine beer and no imitation, and therefore the declaration in that case that no state can make an article prohibited which is generally accepted as an article of commerce does not apply to this one.

Of course, as we have seen, the case concedes that the article offered was wholesome and an article of commerce shipped from Chicago, where it was regularly produced in quantities, but Massachusetts had said that its color condemned it. Chief Justice

Fuller naturally dissented, and with him Justices Field and Brewer. The claim of police power in this matter becomes very slight when it is recalled that the act of Congress provides ample safeguards for the stamping of oleomargarine packages. All the state needed to do to guard against deception was to provide that its own citizens should not offer the substance except in such packages unbroken.

To determine, with all the refined subtleties that regulate the intercourse of independent states, how imitation butter shall be offered in village markets is a distinct feature of American jurisprudence. The real support of such determination is the sound one adverted to by Justice Harlan in the last paragraph of his opinion: the impropriety of overturning state legislation in the Supreme Court except in cases of real, if not of absolute, necessity. This time it saved Massachusetts from danger of eating colored oleomargarine contrary to the will of her legislature, though the doctrine was not applied to save the good folks of Iowa from imported beer.

The police power received another earnest attempt at "delimitation" from another point of view in the ¹ *United States vs. E. C. Knight Company*. An act of Congress of July 2, 1890, provided that every contract, combination, in form of trust or otherwise, or conspiracy in restraint of trade and commerce among the several states, is illegal, and that persons who shall monopolize, or who shall attempt to monopolize, or combine, or conspire to monopolize, trade or commerce among the several states, shall be guilty of a misdemeanor.

The American Sugar Refining Company, having New York and New Jersey named as its principal places of carrying on its business of making, refining and selling sugar and its products, had, prior to March, 1892, obtained control of all the sugar refineries of the country, except of four companies in Philadelphia, which refined about one-third of the sugar used in the United States, and one in Boston, refining about two per cent. of it.

In March, 1892, the American Company bought all the stock of the four Philadelphia companies and increased its own capital stock by \$25,000,000. There was no understanding or agreement to all sell at once on the part of the four companies. After the

¹ 156 U. S., 1 (Jan., 1895).

purchase, the Philadelphia refineries were operated in pairs for reasons of economy, and a little more sugar produced than before. The American Company bought them in order to

"obtain a greater influence or more perfect control over the business of refining and *selling* sugar in this country."

After such purchase the American Company refined and sold all but about ten per cent. of the sugar used in this country.

These facts were shown in an action brought by the Attorney-General of the United States to enjoin the consummation of the purchase by the American Company, generally known as the Sugar Trust, and to compel the restoration of the stock and franchises to the four companies. The act of Congress referred to provides for the punishment of persons violating it, and also for proceedings in equity in the United States courts to enforce its provisions.

The Circuit Court dismissed the action, and the government appealed it to the federal Supreme Court, and in an opinion by Chief Justice Fuller the decree of dismissal was confirmed. He did not think commerce a part of manufacture nor manufacture a part of commerce, nor that arrangements to control manufacture were combinations to interfere with interstate commerce. He, therefore, held the matter not within the power of Congress.

"It is vital that the independence of the commercial power and of the police power, and the delimitation between them, however sometimes perplexing, should always be recognized and observed; for while the one furnishes the strongest bond of union, the other is essential to preserve the autonomy of the states as required by our dual form of government, and acknowledged evils, however grave and urgent they may appear to be, had better be borne than the risk be run in the efforts to suppress them of more serious consequences by resort to expedients of even doubtful constitutionality."

He finds the power to govern men and things within the limits of its dominion

"a power originally and always belonging to the states, not surrendered by them to the general government, nor directly restrained by the constitution of the United States and essentially exclusive." . . . "That which belongs to commerce is within the jurisdiction of the United States, but that which does not belong to commerce is within the jurisdiction of the police power of the state."

The case of *Kidd vs. Pearson*, cited as to its argument that

manufacture is no part of commerce, is made largely the basis of the decision. In Chief Justice Fuller's view, the trust was a manufacturing organization, and with the control of manufacturing the states alone are concerned. He thinks the law carefully framed with a view to established principles in not professing to deal with monopoly as such, but only with combinations "to monopolize trade with foreign nations and among the states." He finds in the acts complained of no direct relation to commerce between the states or with foreign nations, and that the allegations of the distribution of the company's products among different states and of dealings with foreign nations show merely that "trade serves manufacturing."

The Chief Justice's use of *Kidd vs. Pearson* seems hardly a fair one. Justice Lamar's position really is that *Mugler vs. Kansas* had ascertained that intoxicating liquors were so far an exception among commodities that their manufacture could be forbidden without infringing on the liberties of a citizen; that their manufacture had been forbidden in Iowa, except for certain purposes, and that for any other purpose they had no lawful existence in that state and so could not become subjects of commerce there. That he would have applied the holdings of the same case to the manufacture of sugar is impossible to believe. Selling is as much a part of commerce as is buying, and manufacture is as closely connected with selling as is transportation with either. Justice Lamar's argument that with manufacturing as such Congress has nothing to do is merely incidental.

The dissenting opinion urges with great force that this is not a mere manufacturing organization, but also a buying and selling one. The very purpose for which it sought to control sugar manufacturing facilities was in order to control the market, and the trial court so found. What market? None other than the interstate market of this country, as the proof amply shows. The only object of controlling the production was for the express purpose of monopolizing foreign and interstate trade in the thing produced, to control the price by monopolizing the product. It attacks the implied assertion of the court's opinion that because the company is a manufacturing one it cannot also be a trading one and of a forbidden kind. Indeed, there seems implied in the court's opinion a doctrine that the trade activity of this trust cannot be regulated without affecting its manufacturing, and so Congress has no power.

Perhaps in no other case since the civil war is there a suggestion that Congress should not regulate commerce lest it trench on the police power.

It needs no extensive reading between the lines in both opinions to see that in each case the writer's real point of view is national expediency—the one fearing to have Congress venture into such a field, the other fearing the consequences of its not doing so. The cases and statutes dealing with contracts in restraint of trade and the state's power over them cited in this opinion would of themselves furnish material for a more extended work than this.

In ¹ *Geer vs. Connecticut* we have another application of the case of *Kidd vs. Pearson*. Geer was convicted of having game in his possession for the purpose of shipment to another state, which is a penal offense in Connecticut. The conviction was sustained by the state Supreme Court, and taken on error to that at Washington. This case brought on another judicial debate. The law was sustained by a bare majority of the court, Justices Brewer and Peckham not sitting, and Field and Harlan dissenting.

The majority opinion by Justice White upholds the law by an ingenious argument that property in game is a qualified one; that the state has especial authority to say under what conditions it shall become perfect. From this, with a large array of citations from civil and common-law countries and states, the conclusion is drawn that the state may say on what terms game can be killed. Having prescribed one of them that it shall not be for shipment, it may prevent such shipment, and in that state no one can become possessed of such a property in killed birds as may be protected by the commerce clause.

The dissenting opinions find no difference in the ownership of game once killed and reduced to possession from property in other things, and declare the law bad as a palpable regulation of interstate commerce. Neither opinion ventures to assert that ordinary property can be forbidden to leave the state. A feature of this case is that in Kansas and Idaho similar laws had been held to be contrary to the federal constitution by state and territorial courts. Another feature is the duty which Justice White finds in a state to look after a food supply for the people to avoid the evils of scarcity.

In ² *Western Union Telegraph Company vs. James*, a Georgia law fixing a penalty for failing to deliver telegrams promptly and

¹ 161 U. S., 519.

² 162 U. S., 650 (1896).

impartially, provided that addressee lived within a mile of the company's station or in a town or city where such station was situated, was held valid as an exercise of the police power, which the court declines to define, but describes as

"the general power of the state to enact such laws in relation to persons and property within its borders as may promote the public health, the public morals and the general prosperity and safety of its inhabitants."

In ¹ *Telegraph vs. Pendleton* a law of Indiana, similar in its terms, was held to have no validity as to a message sent from Indiana to Iowa, Indiana having no authority to prescribe what shall be done in another state. In the Georgia case the law is held to apply to messages sent from beyond the state, on the ground that it does not necessarily affect the action of the company in any other state, nor establish any discrimination against non-resident companies.

In ² *Hennington vs. The State of Georgia* the question was on a statute forbidding the running of freight trains on Sunday. This is sustained, although its effect might be to stop trains running across the state from and to other states upon that day. It is pronounced a police regulation and not one of commerce, though incidentally affecting that subject, and good "at least until Congress interferes."

Chief Justice Fuller and Justice White object that a state can make no regulation of commerce, and this act, which suspended it for one day out of seven, was certainly a regulation, and no police power could authorize an interference with that which the constitution made free except as Congress should limit it. Perhaps, feeling the force of this, the court, in its opinion by Justice Harlan, gathered a great array of state decisions as to Sunday laws, and of federal cases which uphold state laws affecting commerce, but not aimed at it.

In ³ *Illinois Central Railroad Company vs. Illinois*, on the other hand, a statute of Illinois which, as construed by the courts of that state, required the company to take its through passenger trains three miles out of their way to stop in the city of Cairo before passing into Kentucky and other states was held to be aimed at commerce and void.

¹ 102 U. S., 347 (1887).

² 163 U. S., 299 (1896).

³ *Id.*, 142 (1896).

In ¹ *Plessy vs. Ferguson* the question was the constitutionality of a law requiring all railroad companies in Louisiana to provide equal but separate accommodations for white and colored passengers, and that no person be allowed to occupy seats other than that assigned, and requiring train officers to assign passengers their place according to race and color, and fixing a penalty for not obeying such assignments. Plessy had been assigned to a coach, but had insisted on taking one in which he did not belong. Such was the charge. It made no mention of his race. He made application to the Supreme Court of the state for a writ of prohibition to stop such proceedings against him, alleging that the law was unconstitutional. It held the law valid, and he procured a writ of error. He claimed to be seven-eighths Caucasian and one-eighth African; that the African admixture was not discernible, and that he was entitled to all the privileges and immunities of a citizen of the United States of the white race; that, so thinking, he took the white man's coach, was ordered to take another provided for colored persons, refused, and was ejected by the aid of a police officer. He claimed the act was contrary to both the thirteenth amendment and to that clause of the fourteenth which prohibits certain legislation on the part of the states. The statute was sustained. The court found that merely providing a separate car for colored people and requiring them to take it was not depriving them of any right secured by either amendment.

Justice Brown in the opinion cites a long array of decisions from state and federal courts upholding such enactments. Justice Harlan assails the act as a violation of liberty in not permitting white and black persons who desire to do so to travel together. He suggests that this law is not very consistent with the reiterated holding of the court that black and white jurors must be permitted to serve on the same cases, and suggests that some one may be proposing a law to separate them by some kind of a partition while so serving.

In ² *St. Louis & S. F. Ry. Co. vs. Matthews* old principles return again in the holding that a state law making railway companies liable for all damages caused by fires starting from their locomotives is valid. The court finds that under the ancient law of England all persons were liable for damage arising from fires of their own lighting, and that the statutes in this country had uni-

¹ 163 U. S., 537 (1896).

² 165 U. S., 1 (1897).

formly declared such a liability on the part of railroad companies and the statutes were universally upheld.

In ¹ *Robertson vs. Baldwin* we have another example of the current method of interpreting constitutions by common-law precedents. The doctrine is expressly declared that the federal bill of rights embraced in the federal constitution is like other bills of rights, to be held to refer to those rights as defined and established in the common law. From an exhaustive examination of the decisions, Justice Brown concludes that the contract of a seaman to remain in service may be enforced by summary process and by confining him, and that this does not constitute involuntary servitude. The cases cited go far back into history. The refinement to which he is forced in order to show that these summary proceedings are not cases in the meaning of the constitution is a striking example of how thoroughly precedents control the ordinary meaning of the terms in even the national constitution.

In ² *Allgeyer vs. Louisiana* we have the latest definition, by high authority, of liberty. A law of that state provided a fine of a thousand dollars for doing

"any act in this state to effect for himself or another insurance on property then in this state in any marine insurance company which has not complied with the laws of the state."

Allgeyer & Company, exporters of cotton in New Orleans, made shipments to foreign ports and against them drew drafts. These drafts were frequently negotiated in New York. When so negotiated a policy of marine insurance was attached. They would notify the Atlantic Mutual Marine Insurance Company at New York that insurance was wanted and attach an order for it to the draft. The correspondent in New York getting the draft and order would obtain the policy and attach it to the draft and bill of lading before negotiation.

October 23, 1894, a notification was sent by Allgeyer & Company from New Orleans to the insurance company at New York that a marine policy for \$3400 was wanted on one hundred bales of cotton, which were at that time in Louisiana for shipment. For this Allgeyer & Company were by the Louisiana state court required to pay the penalty of one thousand dollars, and they procured a writ of error from the federal Supreme Court.

¹ 165 U. S., 275 (1897).

² *Id.*, 578 (1897).

That court reversed the case and held that the Louisiana statute, in attempting to exact a penalty for transacting business otherwise lawful merely because it was done with citizens of the United States outside of Louisiana, was unconstitutional. The court says, opinion by the chief justice, that the statute is

"a violation of the fourteenth amendment and of the federal constitution in that it deprives the defendants of their liberty without due process of law." . . . "The liberty mentioned in that amendment means not only the right of the citizen to be free from mere physical restraint of his person, but the term is deemed to embrace the right of the citizen to be free in the enjoyment of all his faculties, to be free to use them in all lawful ways, to live and work where he will, to earn his livelihood by any lawful calling, to pursue any livelihood or avocation, and for that purpose to enter into all contracts which may be proper or necessary and essential of his carrying out to a successful conclusion the purposes above mentioned." . . .

"But we do not intend to hold that in no such case can the state exercise its police power. When and how far such a power may be legitimately exercised with regard to these subjects must be left for determination to each case as it arises."

In *Gladson vs. Minnesota*¹ a statute of that state requiring railroad companies to stop every regular passenger train at all county seats on their lines, so as to let out and take on passengers, was held valid and not unreasonable with an extended citation of cases by Justice Gray. He distinguishes the case from *Illinois Central Ry. Co. vs. Illinois* by the fact that the requirement in that case was unreasonable and operated directly as a detention of interstate traffic.

*Davis vs. Massachusetts*² upholds the city ordinance of Boston prohibiting public speaking on public squares without a permit from the mayor. The court declined to consider any question of reasonableness or unreasonableness of such arrangements of the city in reference to its own parks.

In the 1897 term of the federal court there were seventeen cases involving the police power directly, and many others more or less indirectly involving it. It is not possible to even summarize them here. They introduced no modifications of doctrine, but many new applications. In *Holden vs. Hardy*³ is one of the most inter-

¹ 166 U. S., 427 (1897).

² 167 U. S., 43 (1897).

³ 169 U. S., 366.

esting recent discussions of the police power in regard to a question as to which the state courts disagree. A statute of Utah forbade employment of workmen for more than eight hours of the day in mining, smelting or refining and reduction of ores and metals.

Holden was convicted of employing one John Anderson to work as a miner ten hours a day. He claimed that the law deprived him and his employes of liberty; that it was class legislation, and also a deprivation of equal protection of the laws and of property and liberty without due process of law and of his privileges and immunities as a citizen of the United States.

The Supreme Court holds the law good, Justices Brewer and Peckham dissenting. Justice Brown, in the opinion by the court, reviews the history of the fourteenth amendment and, to a great extent, its application by the federal Supreme Court. He divides the cases into: First, those where legislation is claimed to have discriminated unjustly against some individual or class, and so deprived particular individuals of their fundamental rights, and, second, where the legislature has changed or abolished something which had been deemed essential to the administration of justice.

This is preliminary to a general survey of changes in procedure and substantive law in this century, among which he emphasizes mitigation in severity of punishments, emancipation of women, disuse of the grand jury, simplification of the law of real property and of the law of civil procedure. The definition of liberty in *Allgeyer's* case is approved as establishing a property right of contract, but *Commonwealth vs. Alger* is cited to the principle that no property right is above the police power when rightly used.

The prohibition of lotteries and of dealing in intoxicating beverages are instanced as late developments in the use of this power in relation to contracts. Citations of cases and statutes as to mines and mining are extensively given, and he concludes that, if safety can be required in appliances, reasonable hours of employment in the interest of health and morals may also. He declines to express any opinion as to the constitutionality of a general eight-hour law, but he thinks it allowable to establish it in the employment under consideration. Similar laws in many states are not upheld.

In *Smyth vs. Ames*¹ we have the last determination as to railroad rates. Freight rates established by the Nebraska legislature

¹ 169 U. S., 466 (1898).

were held unreasonable and therefore invalid. The decision in the Circuit Court had been by Judge Brewer along precisely the same lines as in *Reagan vs. Trust Company*, above. This was affirmed with no new suggestions, unless, perhaps, the one that a fair value of the property used must be the basis of any reasonable rate, and that this is to be determined from all the relevant circumstances in the case.¹

In *C., B. & Q. Railroad Company vs. The State of Nebraska*, the rights of state and city in controlling streets is considered. A viaduct had been constructed in Omaha under a statute authorizing a division of expenses in such work between the railway companies and the city. It had been built as the result of an agreement between two companies jointly and the city. It became out of repair, and the city, under a new statute requiring the railroads to maintain such viaduct, assessed the cost of repairing against the roads. The court holds that although the city had originally agreed to bear two-fifths of the expense, there was no ground to hold that the city had parted or could part with its police power to require the roads to comply with the law as to repairing the street.

In *Hawker vs. The People*² the right of the state to prescribe the qualifications of those who may practice medicine was stringently upheld. The law forbade any one who had been convicted of a felony from practicing medicine. It was attacked on the ground that it was *ex post facto*, and provided an additional punishment after the commission of the offense. Hawker had been convicted of felony and had served his time of punishment before the enactment of the law. The court, however, says that the purpose of the act was to secure reliable service to the people in sickness and was not punishment. If some additional hardship is incidentally suffered by those who had previous to its enactment been convicted of crimes, as was the case with Hawker, such fact did not vitiate the law nor take away its application to them.

In *Rhodes vs. Iowa* and *Vance vs. Vandercook Co.*, both decided May 9, 1898, the liquor laws came back again, in the former case the old dispute between the commerce clause and the state exercising its duty of police. The question was simply whether the imported "goods" or "evils," as the state law esteemed them, could be seized while in the possession of the transporting agen-

¹ 170 U. S., 57.

² *Id.*, 189 (1898).

³ 170 U. S., 412.

⁴ *Id.*, 468.

cies on reaching the state or only after delivery to the consignee. The latter is held to be the meaning of the "Wilson Bill." Justices Gray, Harlan and Brown dissent, in the first place because, they say, the police power of the state attached any way without help from the "Wilson Bill." In the next place they hold strenuously that when Congress said that the liquor should be subject to the state law on arrival within the state, those plain words indicated a plain intention and should be followed.

In *Vance vs. Vandercook Co.* the police power gave way before the commerce clause, but prevailed as against the fourteenth amendment. The South Carolina law stopping all private traffic in liquor and creating a state dispensary was in part upheld. The company was shipping wines from California to an agent in South Carolina to be sold in unbroken packages and asked an injunction against the agents of the state who threatened to take possession of the stock. The United States Circuit Court for South Carolina granted the injunction and the state officers appealed.

The year before in ¹ *Scott vs. Donald*, in substance the same law of the state had been before the court, but was found bad on account of some minor discriminations against liquors produced in other states. The authority of the state to create such an agency and forbid all private sale was not passed upon. The law as now amended was objected to, first, as repugnant to the commerce clause; second, that in directing state officers to buy and sell all liquors in the state, the law forbade sales by others in the original packages; and, third, that the law hampers the shipping in of liquors to a citizen for his own use by conditions destructive of the right.

It was held that the state might establish its own dispensary, but could not require each resident ordering wines or liquors to furnish a sample of his proposed purchase to the state chemist and get a certificate of its purity. This was held not to be an inspection law as the liquor actually shipped was not inspected.

In ² *Schollenberger vs. Pennsylvania* and *Paul vs. Pennsylvania*, oleomargarine triumphed with the aid of the commerce clause. The same statute, as in the case of ³ *Powell vs. Pennsylvania*, was under consideration, but this time instead of a home manufacturing plant to be rendered worthless, if the manufacture was forbidden,

¹ 165 U. S., 58.

² 127 U. S., 678.

³ 171 U. S., 1.

the question was as to the sale of an "original package." Schollenberger had sold some oleomargarine for the Oakdale Manufacturing Company of Rhode Island, and his business in Philadelphia was selling it, as agent for that company. It was duly marked, and he had paid the United States tax for license to carry on the business and held such license. He was fined for selling a forty-pound package in the tub in which it was shipped.

Oleomargarine is found to be an article of commerce, and as no attempt to show its unwholesomeness had been made, and Congress had provided for its inspection and condemnation if found to contain unwholesome ingredients, it was presumed wholesome. The law which was good against Powell's personal right to pursue an honest calling, which was valid to beggar him by destroying the value of his plant, was powerless against the introduction of the same article from Rhode Island.

In Powell's favor were the express words of both state and federal constitutions guaranteeing him both liberty and property. In favor of the retailing agent there is only the implied prohibition contained in giving to Congress power to regulate commerce between the states. But that fear of commercial wars which caused the federal constitution is not behind the fourteenth amendment, nor behind any of the precedents by which it is construed. Justices Gray and Harlan forcibly dissent, relying on Plumley's case. They also dissent in the following case of ¹ Collins *vs.* New Hampshire, where the court held bad for interfering with commerce a law requiring all oleomargarine to be colored pink before it was offered for sale. The court concluded that the law was simply intended to prevent the sale of the article. If such sale could not be directly prevented, as they had just held that it could not, it ought not to be done indirectly.

During the current term of the court in ² Blake *vs.* McClung the right of the state to provide that its own residents shall first be paid out of the assets in the state of a suspended corporation was denied as contrary to section ii of article iv of the federal constitution, so far as individual citizens of other states were concerned, but upheld as to foreign corporations, with a vigorous dissent from Justice Brewer and Chief Justice Fuller.

By ³ Chappell Chemical and Fertilizer Company *vs.* Sulphur

¹ 171 U. S., 30.

² 172 U. S., 239.

³ *Id.*, 472.

Mines Company, the right of the state of Maryland to provide that in the city of Baltimore, only, cases should be tried by the court, unless the jury is demanded by a specified time, was upheld as not denying equal protection of the laws.

In ¹ *Orient Insurance Company vs. Daggs*, the right to require all insurance companies to pay the full amount of insurance in the event of the total loss of the property, regardless of its value, is maintained on the ground of the general right to prescribe the terms on which corporations may do business.

In ² *Wilson vs. Eureka City*, an ordinance forbidding the moving of a building across a city street without permission of the Mayor is found not to give any unconstitutional or arbitrary power to the Mayor, on the authority of *Davis vs. Massachusetts*, notwithstanding a long array of cases from state courts, based on ³ *In re Frazee*, opposing arbitrary power in municipal officers.

In ⁴ *Loan and Trust Company vs. Campbell Commission Company*, the allowance of attachments against non-resident debtors without bond while requiring one as against residents, was sustained as not denying equal protection of the laws.

An Arkansas statute requiring immediate payment of all arrears in wages on discharge of an employee of a railroad company is upheld against a similar attack in ⁵ *St. L. & I. M. & S. Ry. Co. vs. Paul*.

In February, 1899, the question of the right of Ohio to require every railroad company in that state to stop at least three of its regular passenger trains in all towns of three thousand or more inhabitants through which so many trains of the road should run daily was held to be entirely within the police power of the state. The power is expressly held to extend not only to the public health, morals and safety, but to every thing that promotes public peace, comfort and convenience.

It is true that this is done by a bare majority of a divided court. It is to be noted again that the contention in the matter is not as to any violation of property rights or individual or even corporate liberty. The question is not raised as to the right of a state to make such requirements of its own citizens or corporations, but simply whether the commerce clause is in the way.

¹ 172 U. S., 557.

² 173 U. S., 32.

³ 63 Mich., 396.

⁴ 173 U. S., 84.

⁵ *Id.*, 404.

The minority claim that such action is contrary to the dogma of exclusive power in Congress to regulate interstate commerce, and especially that it is inconsistent with Justice Miller's opinion in ¹ *Wabash, Etc., Ry. Co. vs. Illinois* and the precedent on which that case chiefly rested, ² *Hall vs. DeCuir*. The majority, however, deliberately extend the police power in matters affecting commerce to provisions for the public convenience and general welfare as well as for guarding public safety, health and morals. Justice Harlan in the opinion of the court says :

"It may be that such legislation is not within the 'police power' of a state, as those words have been sometimes, though inaccurately used, but in our opinion the power, whether called 'police,' 'governmental' or 'legislative,' exists in each state, by appropriate enactments not forbidden by its own constitution or by the constitution of the United States, to regulate the relative rights and duties of all persons and corporations within its jurisdiction, and, therefore, to provide for the public convenience and the public good."

Such is the last decision of the federal Supreme Court as to that mixture of political theories and English and American precedents which by a series of events which have been sought to be outlined acquired the name of "police power," and has gone on forming new precedents. Brunetière declares that the greatest influence in developing new literature is always former literature. It is still more true that the greatest influence in shaping new decisions is earlier ones, and the final form any new principle will assume cannot be known till its adaptation into existing ones is accomplished. The mixing of the precedents as to the powers of crown officers and chartered municipal and trading corporations with theories of sovereignty and legislative functions, all adapted to the exigencies of American life, has brought the result which has been sought to be shown.

¹ 118 U. S., 557.

² 95 U. S., 485.

CHAPTER XIV.

CONCLUSION.

The foregoing has been written quite in vain, and under a complete misapprehension, if there is any need of extended discussion of the relations of the police power decisions to the general growth of law. As to the police power itself enough and too much has been said. If that were the subject of examination the work might be as brief as the famous chapter on the snakes in Ireland, as compendious as De Tocqueville's remark as to the English constitution, "*Elle n'existe point.*"

It is not necessary to adopt Treitschke's oft-repeated declaration, that the state is force,¹ in order to conclude that "the police power" is a fiction. Every judge whom we have seen attempt to analyze it finds in it Madison's "indefinite supremacy" of the state. The doctrine of faculties and separate powers of the state may not be as essentially absurd as Treitschke thinks,² but in our case the term is certainly a mere abstract and collective one for the state, where regarded as employed in certain functions; and constant forgetting of this fact has made endless trouble.

Judges and lawyers need to recollect constantly that the police power is not an entity. They need to assure themselves of this quite as earnestly and as often as Claud Bernard found that physicians need a like assurance with regard to disease. This is obvious enough to have required no demonstration, and Justice Harlan's opinion, last February, in *Lake Shore Railroad Company vs. Ohio*, has done this work with satisfactory thoroughness, if it was needed.

If the whole significance of these cases has not been misconceived, the characteristic thing about this latest development in our jurisprudence is its unintended growth out of unconscious habits. Chief Justice Marshall dropped the seed without intending it. Justice Barbour picked it up without observing it, and until it had

¹ *Vorlesungen*, Vol. 1, 33-323; Vol. 2, 11-27, and elsewhere.

² *Id.*, Vol. 2, p. 3.

grown almost to its full size no one remarked it as anything peculiar. Then the process of identifying it with something quite ancient, with which it was only remotely connected, began.

The suggestion of Marshall's was put forward to serve a need to enable the slave states to minister to their "peculiar institutions," while the national authority was nevertheless enforced. It was done almost involuntarily by judges who used it because it lay at hand and was available. Then it was used in the states to resist extravagant claims of property and corporate rights and to extend restraints over the liquor traffic. After the civil war it was needed again for the same purpose to enable the states to maintain their autonomy against the reconstruction legislation of Congress and the new amendments; and, again, it was involuntarily seized upon and crowded into the gap.

In such use it so wrought upon legislation that it finally triumphed over the bills of rights almost completely, but the fourteenth constitutional amendment, almost wholly balked by our legal habits of its intended effect as to the negro race, was turned by those habits to the accomplishment of purposes in relation to property and legislation that the framers of it did not even remotely conceive.

We have here, then, an edifice which no one planned, which developed under the hands of learned and thoughtful men without their perception of it, took finally a form quite different from the thing that was meant, and all in regard to matters put forth in carefully devised constitutions, the result of the utmost deliberation. Is there in the history of jurisprudence a stronger exhibition of the overwhelming force of habit and circumstances in shaping law, as compared with will and intention? Does not this show, indeed, that law derives its contents from the needs of the community for which it serves?

Law, as Austin and Bentham thought, is established by the will of a lawgiver. That much may be granted, but the Supreme Lawgiver has ordained that it shall be maintained by habit. It becomes law in effect only by reason of its ability to transform the compliance with it from a voluntary and intentional act into an involuntary and effortless habit. The wisest lawgiver is unable to foresee how far he can do that, for two reasons. He is not thoroughly acquainted with his subject's habits, already formed, nor with their degree of persistence. He does not know what new forces may come to interfere with him. So it happened that Solon

found the brief years of his Asiatic journey sufficient to set aside nearly all those laws which his countrymen had sworn to observe forever.

It requires but a moment's reflection to recognize the overwhelming importance of habit in law. It is true that men do their actions in Schiller's "arrowy swift present." That action is controlled by the future or by the past, or rather by the resultant of the two. If the present event merely touches the springs of habit and starts an action like similar ones in the past, then that past controls. If the habit is firmly enough fixed and the action has been often enough performed, and no disturbing consequences are in sight, its recurrence is merely reflex and unconscious; less firmly fixed, it will be conscious and more or less adjusted to consequences. In those consequences and their perception lies the other force. The future works through them, and if they be clear and inevitable they speedily produce adjustments which themselves become habitual and may become unconscious. Witness those habits which enable man to employ fire, and the extent to which they are unconscious.

The theory of the common law, that the courts did not make but found it, has this basis of habit—a set of habits controlling alike judge, officer and parties. The judge's conception that his determination has been made for him beforehand, if he can only adjust the case so as to bring the former determinations to bear upon it, is much nearer truth than the fiction that Bentham thought it. Mankind are not all endowed with Bentham's passion for "utility." If they were, they would, like him, contract habits in its pursuit.

In dealing with the limitations of the powers of government in the states it is clear that we are dealing with habits. The real question attempted in this essay is, What are the habitual limits actually observed by the courts and adhered to in passing upon the rights of these parties who are contending on the one side that the legislature has gone beyond its powers, and on the other that its action is valid and has effected the intended alteration in the rights of the parties?

We perceive at once that precedents are much more than maxims; that actions speak louder than words. Legal habits on the one side and recognitions of utility on the other frequently leave very little of a high-sounding constitutional declaration, and as fre-

quently stretch an obscure implication into an absolute requirement of free trade between the states, which can yield to no police necessity for the suppression of the liquor traffic.

The actual contents of the law, the actual extent and power of government, is determined by the adjustment to each other of two sets of habits: the habits of those in authority in regard to its exercise and the habits of those in subjection as to obeying or resisting. Constitutional principles that have grown up out of the practice of a state and crystallized into an expression of habit are important so far as they indicate such habit. Provisions set up for their supposed utility are important only in so far as they create new habits, as we have so distinctly seen in the case of the fourteenth amendment.

What is here said is no deprecation of intelligence or of considerations of utility in legislation or government. Habits of legal action, like all others, are subject to modification, and the modifying influences are intelligence and perception of consequences, unless, indeed, with ¹ Mr. Bagehot, we place imitation first. But stronger than the tendency to imitate anyone else is the tendency to imitate one's self. It is an invincible fact that when anything is to be proceeded with, it will be as far as possible along familiar lines, where the attention will not be so fatigued.

Mimicry will furnish a competing suggestion and introduce questions of consequences and utility, but the experiencing and prefiguring of consequences is the force that finally alters habit.

"It is the principle of utility accurately apprehended and steadily applied that affords the only clue to guide a man through these straits. It is for that, if any, and for that alone, to furnish a decision which neither party shall dare in theory to disavow."²

This principle may be accepted as the "only one possible to follow in legislation."

But this "utility" will come in collision with established habits which now are such merely, and not only serve no generally useful purpose, but interfere with the attainment of some social end. It is for the lawgiver to remember that every habit can only be overcome by a substituted one. Every habit in its origin commences

¹ *Physics and Politics*, chap. 3, "Nation Making." See, also, Tarde's *Loi de l'Imitation*, which we would rather call "suggestion."

² Bentham, *Fragment on Government*, chap. 4, sec. 15.

³ Maine's *Popular Government*, 166.

with a real or supposed utility. However totally reflex and involuntary the act may have now become, in the beginning some sort of desire gave the impulse. To overcome the habit that impulse must be steadily turned in some other direction. The perception of utility that is to be the guide must be clear and persistent enough to generate a habit before its object will be attained in establishing a law.

All this is not of necessity belittling to written constitutions. By crystallizing valuable habits they may help to fix the latter in the polity, and to preserve them against a change for supposed utilities that are not really such, and that is what Sir Henry Maine credits our constitution with doing. By putting the results of a habit into a general principle its utility may be more manifest and its safety against competing tendencies to change be thus better secured.

Generally, constitutional principles that represent real habits of action might be expected to prove ramparts of conservatism. Constitutional provisions that represent no settled habits will probably accentuate tendencies to change, and the result of the struggle may be something very far from that originally intended. Does our experience with the constitutional amendments since the civil war not clearly illustrate this? To quote ¹ Bagehot once more, it is in the undiscussed parts of much-discussed subjects that their obscurities lie. In the discussion of laws, their nature, advisability and effect, it has usually been the conscious, the intended, the utilitarian part that has absorbed the attention—that is, the new has attracted all minds. That the old had left its marks and was going to continue producing its effects, no matter how carefully it was sought to obliterate it, has usually been more or less forgotten. This is true even where the infusion of new adaptations into old matter is a very small part of the whole.

But the new frequently proves in the end a strong leaven. So it comes that the immediate effects of political changes are disappointing, while ultimate consequences so far outrun expectations. Jefferson, in his disappointment at the working of the federal system in some respects, called the supreme judges a ² “subtle corps of sappers and miners constantly working underground” to convert the constitution

“from a coordination of a general and special government to a general and supreme one alone.”

¹ *English Constitution*, chap. 6.

² *Works*, vol. 7, p. 192.

Lincoln spent his best years and delivered his most notable public utterances in attacking the court for its decision in the *Dred Scott* case.

Yet a distinguished member of the court availed himself of a commemoration of Lincoln's birthday to claim the Supreme Court as "the bearers of the palladium of American liberty." And his claim must be allowed. Among the changes that have happened in a hundred years is that the court has become the refuge of Jefferson's individualism as against socialistic tendencies in the legislatures. In this they are in the line of the function of the courts in all ages: the application of habits and customs to the determination of the rights of parties.

In this application of old habits to new emergencies in the "decisions relating to the police power of the state," the maintenance of authority as against the letter of the constitutions is a general feature. In one notable respect this is not true. The right of contract, in a freer sense by far than was formerly upheld, is now asserted, and vindicated as protected by the guarantee of "liberty." We have seen this in *Allgeyer's* case in the federal Supreme Court. It is even more marked in numerous state cases. Except in this particular, as against the bills of rights, legislative action in any accustomed way, and in most new ones that can claim a real public utility as their purpose, is sustained.

Of any loss of real or needed authority through the action of the courts there is evidently no danger. While those "old antagonists, Liberty and Government," will continue their struggle in ever new and yet always old forms as the years go on, let us hope that to the courts of last resort will continue to be given wisdom and firmness to hold the scales even; with Marshall, to "both innovate boldly and preserve wisely," and so, like him, "have no steps to retrace." As to what has been done during the last century, if it has been found in this paper necessary to deny the existence of any "police power" as a separate entity, it has nevertheless been sought with all diligence to exhibit the decisions relating to it as they are. To paraphrase Comines' saying, "*Je les ay fait le plus pres de la vérité que je l'ay peu.*"

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PROCEEDINGS
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P R O C E E D I N G S
O F T H E
A M E R I C A N P H I L O S O P H I C A L S O C I E T Y
H E L D A T P H I L A D E L P H I A F O R P R O M O T I N G U S E F U L K N O W L E D G E.

VOL. XXXIX.

OCTOBER-DECEMBER, 1900.

No. 164.

Stated Meeting, October 5, 1900.

Curator MORRIS in the Chair.

Present, 14 members.

Letters were read from Messrs. Cyrus Adler, Edward Patterson and Henry F. Keller, accepting membership in the Society.

The decease of the following members was announced :

John Ashhurst, Jr., M.D., on July 7, 1900.

James Biddle Leonard, on July 14, 1900.

Franklin Platt, on July 24, 1900.

Fairman Rogers, on August 22, 1900.

Sir John Bennett Lawes, on August 30, 1900.

J. M. DaCosta, M.D., on September 11, 1900.

Claudio Jannet.

The following papers were read :

By R. H. Mathews, " On the Origin, Organization and Ceremonies of the Australian Aborigines," and on " Phallic Rites and Initiation Ceremonies of the South Australian Aborigines."

By Dr. R. W. Shufeldt, on " The Osteology of the Woodpeckers."

By Charles G. Leland, on " The Old Mill of Newport."

By Perziker Karoly, on the subject of electricity.

The Society was adjourned by the presiding officer.

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THE ORIGIN, ORGANIZATION AND CEREMONIES OF THE AUSTRALIAN ABORIGINES.

(With Map.)

BY R. H. MATHEWS, L. S.,
CORRES. MEMB. ANTHROP. SOC., WASHINGTON.

(Read October 5, 1900.)

In this article it is proposed in the first place to give a short outline of the probable origin of the native tribes of Australia. Then will follow the evolution of their social laws regulating intersexual relations. A cursory reference will next be made to the initiation ceremonies, but only so far as to suggest their development. A comprehensive map will be added showing the geographic distribution of the different systems of intermarrying divisions throughout Australia, together with the boundaries within which the customs of circumcision and splitting the male urethra are in operation.

Having traveled very largely in all the Australian colonies during the last quarter of a century, in the avocation of a surveyor, as well as in grazing and mining pursuits, I have had unusual facilities for observing the customs of the aborigines, and it is hoped that the result of my researches may be found of some value for ethnographic and geographic purposes.

ORIGIN.

The origin of the aboriginal races of Australia is a subject of high and enduring interest to students of anthropology in all parts of the world; and for this reason I am tempted to submit, in as brief a form as possible, certain views at which I have arrived in regard to the peopling of the mainland of Australia and the adjacent island of Tasmania.

In attempting the solution of this difficult problem it is necessary to call in the aid of different branches of science, among which geography, comparative linguistics, zoology, botany and geology take a prominent part. Owing to the antiquity of the Australian continent, and the consequent absence of written history, it becomes necessary at the outset to propound a theory which will hold the ground, reaching far back into prehistoric times, and then to examine how this hypothesis fits in with facts observed at the present day.

It will be assumed that in a former period the physical geography of the Australian continent was different to what it is now. Geological investigations show that different portions of Australia have been under water in succession more than once, or have been alternately sea and land. The mainland of Africa and Asia at one time had a comparatively unbroken continuity southeasterly as far as Australia, Tasmania and New Guinea. Probably the extension reached farther to the south and east, but the limits mentioned will be sufficient for the present discussion. A great part of this continent—which has been called Lemuria, because it is supposed that there the lemurs had their centre of development—now lies under the Indian Ocean, but its former existence is proved by hydrographic surveys which indicate by the banks and shoals now under water where this great land was situated. Dr. Blanford has endeavored to show that it was over this lost continent that many of the older Indian animals traveled into Africa. And it is stated by Sir J. D. Hooker, the eminent botanist, that a large assemblage of blossoming plants characteristic of the Indian Peninsula are also inhabitants of tropical Australia.

The first inhabitants who were dispersed over the continent referred to were a black race of the Negroid type. They were not necessarily homogeneous, because in moving southward and eastward people of neighboring tracts of country would to some extent mix with each other by conquest or for purposes of mutual advantage, and their language and customs would be modified in certain particulars. These people form the primitive stock from which the original inhabitants of Australia, Papua and Tasmania have sprung. It is immaterial to our present purpose whether the cradle of the human race was in Asia, in Africa or in the now submerged region of Lemuria.

This primitive race spread southeasterly with comparative ease, advancing slowly because its members were not numerous and the tropical character of the country passed through made food abundant and easily obtained. It is not to be expected that the people would all keep together, or travel at the same rate. They would divide into clans or small communities, some moving on in one direction or along particular natural features—others proceeding in other directions—others perhaps remaining stationary for long periods in favorable localities. Useful arts would be developed more in some of these tribes than in others, resulting from the

character of the country occupied and their general surroundings.

Some of the southerly branches of this wave of population marched into Australia at various places on what is now the northern coast of the continent, from whence they spread over the greater part of Australia, continuing their course into Tasmania, which at that period formed one mainland, and became what may be called the autochthonous race. Northern branches of the same human stream passed into New Guinea, New Caledonia, Melanesia and Polynesia in the same way. That the race spread far and wide is evidenced by the extensive distribution of its remnants. In the speech of the present occupants of these lands traces of an original stock language can be detected. A language can adopt and create as many words as it pleases, without changing its character or altering its peculiar construction. Comparative philology must be studied side by side with comparative ethnology. Moreover, in their skeletal structure and general osteology the autochthones of Australia resemble the African negroes and Melanesians, or perhaps present a still more primitive type.

Such a migration as that outlined in the foregoing paragraphs continued for a period of prolonged duration—how long it is needless to speculate upon here. One tide of population would be succeeded by others at irregular intervals, who would naturally follow the pioneers, or advance guard, much in the same way that the settlement of countries takes place at present, detachments entering Australia at different points along the whole length of the northern coast. It may be reasonably expected that the dialects and customs of the later immigrants would differ in some respects from those of their precursors, owing to their arrival at long intervals during successive ages.

Instead of being one race, they were probably a mixture of several races of the same primitive type. It is likely that the numerical strength of a clan or family would be small, and if they kept by themselves for any considerable time the dialect of each would be modified. A number of such small clans being distributed century after century over such a large continent as Australia would account for the immense variety of different dialects we find spoken by the present inhabitants. This diversity of speech probably led to perpetual hostility and distrust among petty tribes, and so kept them separate. The existence of extensive arid tracts in many

parts of Australia necessitated migrations in search of water, and this furnishes another factor in the wide distribution of the people.

In process of time the original race was followed by hostile tribes of a more advanced type and possessing a higher degree of culture. Depressions and elevations of the land due to volcanic agencies and other disturbances of the earth's crust, and the consequent incursions of the sea, would in the interval have effected changes in the relative position of sea and land, and have completely altered the boundaries of continents and oceans. The connection between Australia, Asia, Lemuria and Africa had been more or less submerged, but there was still a comparatively uninterrupted land-route between India and Australia via Ceylon, Nicobar and Andaman Islands, Malay Peninsula, Java, Borneo, Celebes and Timor.

The second migration, like the first, would continue to march into Australia in small detached bands for a long period. In cases where the two races met and came into conflict in regard to the possession of country or otherwise, the new people, being better equipped for warfare, would subjugate the local inhabitants—the autochthonous race—and the customs, dialects and ceremonies of the latter would be assimilated or to some extent superseded by those of their conquerors. In this way most of the mainland of Australia was overrun by the invaders, but they did not reach Tasmania, because it had by that time become an island owing to the submergence of a tract of land now occupied by Bass' Strait.

There is nothing unreasonable in the assumption that these invaders and the native tribes of the southern portion of India are the descendants of a common stock—the Australians, owing to their long isolation, having retained the primitive character of their Neanderthaloid ancestors, while the later Indian tribes have attained a higher grade of evolution. Philologists have, however, failed to definitely connect the Australian tongues with the wild races of Southern India.

The Malay race, in my opinion, never invaded any part of Australia. During historic times they visited the northern coast in canoes or catamarans for the purpose of fishing for trepang, but their intercourse with the Australians was restricted to the coast and was very slight. Even if a few individuals occasionally intermarried with the Australians and went inland among the tribes, they made no deep impression either upon the race or the language.

SOCIAL ORGANIZATION.

In examining the structure of Australian tribes it is found that they possess fixed laws for regulating marital relations. In some cases these laws are of a simple character and consist of the elders of the tribe allotting the progeny of certain women to be the wives of certain men ; in other cases the community is segregated into *two* primary groups or phratries, the men of the one group marrying the women of the other, with a reciprocal obligation. In some tribes each of these two primary groups is bisected, making *four* intermarrying divisions. Among certain tribes of the northern portion of Australia, we find that each phratry or group is subdivided into four sections, thus making *eight* divisions of the community. These tribal divisions have been called Social Organizations or Systems, and an attempt will now be made to briefly explain their development among Australian tribes.

In portions of Australia, widely separated from each other, among which may be mentioned part of the southern coast of South Australia, part of the west coast of Western Australia and the south-eastern coastal districts of Victoria and New South Wales, we discover that the intermarriage of the individuals of a tribe is of the simple character referred to in the beginning of the last paragraph. In some respects these people differ in physical type, in weapons, in language and in their ceremonies, from the natives of other parts of Australia, but resemble in several particulars the inhabitants of Tasmania, which favors the theory already enunciated in this essay in regard to their common origin.

The old men assemble in council at irregular periods, and as often as may be necessary, for the purpose of appointing certain young married women to be what is termed *tooar* to certain boys, and such boys are likewise called *tooar* to these women. Care is taken that the parties appointed *tooar* to each other are not closely related by ties of blood. The boys are thenceforth forbidden to speak to, or even to look at, these women ; and the latter are subject to a similar ban in regard to the boys. For example, if one of the women bears a daughter she gives such child, when old enough, to the young man to whom she herself is *tooar* ; and if he has a sister he is supposed to give her to one of the woman's sons in exchange for his own wife. These two men would therefore stand in the mutual relationship of brothers-in-law.

A woman who is *tooar* to a man may die before she bears a daughter—or such daughter although born may die before the intended husband gets her—therefore to neutralize the chances of a man not securing a wife, more than one woman is usually appointed *tooar* to the same man. On the other hand, one woman may be appointed *tooar* to several young men. If the man to whom her daughter has been betrothed dies before he is old enough to claim her, she then becomes the wife of one of the other men. These rules may be further illustrated as follows: Lizzie, a married woman, is *tooar* to Sam, Tommy and Jack, precedence being in the order named. If Lizzie gives birth to a daughter this child will eventually become the wife of Sam. Should he, however, die before the girl reaches puberty, she would be taken by Tommy as his spouse. But if Tommy had also died then she would fall to the lot of Jack. Each of the young men named may have several married women occupying the position of *tooar* to them, to increase their chances of obtaining a wife.

An unmarried girl on attaining puberty may be assigned to the position of *tooar* in the same manner as a married woman. On her obtaining a husband her daughters eventually become the wives of the men who are entitled to claim them. This *tooar* relationship precludes the possibility of a man having sexual intercourse or any intimacy with any woman who might ultimately become his mother-in-law. A man and woman who are *tooar* to each other theoretically occupy the positions of son-in-law and mother-in-law, and the same restrictions as to mutual avoidance of each other apply in both cases alike. A man may have more than one wife, but each of them must be the daughter of a woman who is *tooar* to him. In making the *tooar* appointments the old men endeavor, as far as practicable, to arrange that the brothers and sisters in certain families shall marry the brothers and sisters in certain other families. The offspring follow the lineage of the father, and also adopt his *totem* in most cases.

In ascertaining what woman is qualified to be *tooar* to a certain boy, A, the old men, who are well acquainted with the genealogy of the people around them, know that A's father is B. They next discuss the question who are the cousins of B. These cousins, whom we shall distinguish as C, may be the offspring either of B's father's sisters, or of his mother's brothers. There will probably be several of such cousins, some in each of the lines of descent just mentioned,

from among whom the old men will select one or more to exercise the function of becoming the parent of A's future wife. Let C¹, one of the cousins of A's father, be a woman who has been thus chosen; then she is *tooar* to A, because he will by and by marry one of her daughters. The old men may also appoint the mother of A, or some other woman occupying the same position in the genealogy, to be *tooar* to the sons of C¹.

I am led to the assumption that the original or autochthonous race possessed a somewhat similar organization to that just described, and that the tribes under reference escaped subjugation by the invading races, either because the latter were not able to overcome them, or because they did not spread sufficiently far south and west as to come in contact with the original people.

In going into regions adjoining those with which I have been dealing, we encounter tribes possessing two intermarrying phratries such as Mattiri and Kararu of Port Lincoln; Krokitch and Kamatch of Western Victoria; Muckwarra and Keelparra of the Barkunjee tribes; Koolpirro and Tinnawa of the Yowerawarrika people, and so on. As I was the first author who reported the two divisions of the last mentioned tribe,¹ I shall proceed to deal with them as typical of the others.

The Yowerawarrika and allied tribes in the southeast corner of Queensland are divided, as I have before stated, into two phratries called Koolpirro and Tinnawa. The natives have told me several legends respecting ancestral warriors, and I have noticed that the most valiant and distinguished men were always said to belong to the Koolpirro division. This led me to think that Koolpirro was probably the name of a warlike tribe or clan in the remote past which had conquered the Tinnawa, an adjoining people, and that each of these tribes or clans originally possessed the *tooar* type of marriage laws.

If we assume that this was so, and that the victors followed the present practice of killing all the adult males, but sparing the women, together with the little boys and girls, the Koolpirro men, whether already married or not, would take one or more of the women of the vanquished Tinnawa tribe as wives. As the Koolpirro men would already have children by their own women, their offspring by the strange women would require to be distinguished from the

¹ *Journ. Roy. Soc. N. S. Wales*, vol. xxxiii, p. 108.

rest, and a very easy way of doing this would be to call them after their mothers, Tinnawa. When the young lads whose lives had been spared at the time of the slaughter of their fathers grew up to maturity, they would take some of their wives from among the Koolpirro women, and distinguish them by the latter name. Or in other words the Koolpirro men would give their sisters to the Tinnawa men in exchange for their sisters as wives. This would account for the origin of the two phratries Koolpirro and Tinnawa, as illustrated in the following table :

TABLE NO. 1.

<i>Phratry.</i>	<i>Husband.</i>	<i>Wife.</i>	<i>Child.</i>
A	Koolpirro	Tinnawa	Tinnawa
B	Tinnawa	Koolpirro	Koolpirro

Instead of the conquerors killing off all the males in the way just stated, it is customary in many places for two hostile families to make peace by the exchange of wives. This practice was much in vogue among the tribes on the Barwon river and its tributaries in New South Wales, whose customs I had exceptional opportunities of observing when stationed in those districts surveying government lands during the years from 1871 to 1880. I have also witnessed this usage among tribes in Queensland, and in the Northern Territory of South Australia.

It may be postulated that in ancient times the Koolpirro men gave their wives to the Tinnawa men in exchange for the wives of the latter, in order to terminate existing feuds, or for the purpose of resisting a common foe. A man of the Koolpirro tribe, for example, would of course have a Koolpirro wife and Koolpirro children. He would give his wife to a Tinnawa man, and her children by the new husband would be called Koolpirro the same as before. This interchange of wives might be only temporary, or it might continue during that generation. But in the rising generation the Koolpirro men would take their wives from the sisters of the Tinnawa men, and conversely the same as at present.

It is seen by Table No. 1 that the resulting offspring in both cases inherit the phratry name of their mother. They are also generally distinguished by her *totem*; thus, if the mother be an iguana, her children of both sexes will be iguanas. This rule is not universal, however, for I have found tribes possessing a dual divi-

sion on the same principle as the Yowerawarrika, where the children took the *totem* of the father.

Strength is given to the hypothesis of the coalescence of two tribes by the fact that in an adjoining community, the Barkunjee, we discover the phratry name Keelparra, evidently a dialectic modification of Koolpirro, which indicates that the tribe of that name in olden times was widespread, and perhaps powerful. Among the Barkunjee, however, Keelparra marries Muckwarra, the latter probably being the name of another vanquished or allied tribe occupying different territory, and the two phratries became Keelparra and Muckwarra.

We will now try to account for the introduction of the organization containing *four* divisions. The Warkeemon community in north-eastern Queensland, first reported by me in 1898,¹ is divided into four sections called respectively Koopungie, Karpungie, Kellungie and Cheekungie. Perhaps each of these names represented a small independent tribe or clan in former times, having the *tooar* system of relationship. To avoid repetition let us assume that Koopungie and Karpungie became incorporated either by conquest or otherwise, and intermarried on the same principle as Koolpirro and Tinawa already dealt with. We will also suppose that Kellungie and Cheekungie amalgamated in a similar manner, and intermarried one with the other. This can be made clear by means of Tables Nos. 2 and 3, which will also show how the children were called, for distinction, by the same name as their mother in each case :

TABLE NO. 2.

<i>Phratry.</i>	<i>Husband.</i>	<i>Wife.</i>	<i>Child.</i>
A	Koopungie	Karpungie	Karpungie
B	Karpungie	Koopungie	Koopungie

TABLE NO. 3.

<i>Phratry.</i>	<i>Husband.</i>	<i>Wife.</i>	<i>Child.</i>
A	Kellungie	Cheekungie	Cheekungie
B	Cheekungie	Kellungie	Kellungie

We will now assume that the Koopungie and Karpungie confederacy (Table No. 2) subjugated the Kellungie and Cheekungie confederacy (Table No. 3) ; or that these two peoples thought it

¹ *Journ. Roy. Soc. N. S. Wales*, vol. xxxii, pp. 250, 251.

prudent and politic to amalgamate for the purposes of mutual defense. This alliance could have been easily accomplished by the interchange of wives between the members of the opposite confederacies. Koopungie could have taken the wife of Kellungie and could have given his own wife to a Kellungie man. Cheekungie and Karpungie could have exchanged wives in a similar manner, but there was no alteration made in the names of the offspring in any case. For example, the children of a Koopungie man were distinguished as Karpungie the same as before the coalition and so on, as in the following table, a careful perusal of which will make my meaning more clear :

TABLE NO. 4.

<i>Phratry.</i>		<i>Husband.</i>	<i>Wife.</i>	<i>Child.</i>
A	{	Koopungie	Cheekungie	Karpungie
		Kellungie	Karpungie	Cheekungie
B	{	Cheekungie	Koopungie	Kellungie
		Karpungie	Kellungie	Koopungie

In examining the above table, together with the two preceding ones, it will be observed that a man, Koopungie, of the A phratry in Table No. 2 marries a woman, Cheekungie, of the B phratry in Table No. 3, and *vice versa*; and that a Karpungie man of the B phratry in Table No. 2 marries a woman, Kellungie, of the A phratry in Table No. 3, and *vice versa*. It is also seen that the people belonging to the two A phratries go together, and the two B phratries together in Table No. 4. That is to say, the men of the sections Koopungie and Kellungie of the A phratry in Table No. 4 marry the women of the two sections Cheekungie and Karpungie of phratry B in this new organization, and conversely. The men and women of the respective phratries are therefore mutually related as brothers-in-law and sisters-in-law. It is therefore apparent that whether the organization consist of two divisions, as among the Yowerawarrika, or of four sections like the Warkeemon, the community still retains the two primary intermarrying phratries, A and B. Aggregates of *totems*, chosen from the fauna and the flora, are attached to each division.

It now remains to explain the probable origin of the present system of dividing a tribe into *eight* sections. If our theory is of any value it should hold good in this system as well as in that of four divisions already explained. The eight divisions of the

Wombya tribe, which I discovered and reported in the beginning of 1898,¹ will be used for illustration. The names of the sections are Choolum, Palyaringie, Cheenum, Bungaringie, Chingulum, Yacomary, Chooralum and Jamerum. We will commence with the first mentioned four of these names.

Choolum is the father of Palyaringie, and by referring back to the Yowerawarrika tribe it is seen that the children in that system take the name of the mother; therefore I shall assume that formerly the Choolum and Palyaringie clans became consolidated by conquest or otherwise, in the same way as the tribes we have been describing. A Choolum man married a Palyaringie woman, and *vice versa*, the children taking the name of the mother in both cases (Table No. 5). A similar incorporation took place between the Cheenum and Bungaringie clans (Table No. 6). Afterward these two confederacies amalgamated by interchanging their wives or sisters in the same manner as the Warkeemon people, thus transposing the intermarrying divisions, but leaving the names of the men's offspring the same (Table No. 7).

TABLE NO. 5.

<i>Phratry.</i>	<i>Husband.</i>	<i>Wife.</i>	<i>Child.</i>
A	Choolum	Palyaringie	Palyaringie
B	Palyaringie	Choolum	Choolum

TABLE NO. 6.

<i>Phratry.</i>	<i>Husband.</i>	<i>Wife.</i>	<i>Child.</i>
A	Cheenum	Bungaringie	Bungaringie
B	Bungaringie	Cheenum	Cheenum

TABLE NO. 7.

<i>Phratry.</i>		<i>Husband.</i>	<i>Wife.</i>	<i>Child.</i>
A	{	Choolum	Bungaringie	Palyaringie
		Cheenum	Palyaringie	Bungaringie
B	{	Bungaringie	Choolum	Cheenum
		Palyaringie	Cheenum	Choolum

We will now deal with the remaining four divisions of the Wombya tribe, namely, Chingulum, Yacomary, Chooralum and Jamerum. At the present day Chingulum is the father of Yacomary, and by again using the Yowerawarrika tribe as a basis, I will assume

¹PROC. AMER. PHILOS. SOC., PHILADA., Vol. xxxvii, pp. 151, 152.

that in former times the Chingulum and Yacomary clans became incorporated and intermarried one with the other, the offspring being distinguished by the name of their mothers (Table No. 8). Chooralum and Jamerum were similarly coalesced (Table No. 9). Subsequently these two confederacies became amalgamated in the same way as those represented in Table No. 7, the section name of each man's children remaining unchanged. (See Table No. 10).

TABLE NO. 8.

<i>Phratry.</i>	<i>Husband.</i>	<i>Wife.</i>	<i>Child.</i>
B	Chingulum	Yacomary	Yacomary
A	Yacomary	Chingulum	Chingulum

TABLE NO. 9.

<i>Phratry.</i>	<i>Husband.</i>	<i>Wife.</i>	<i>Child.</i>
B	Chooralum	Jamerum	Jamerum
A	Jamerum	Chooralum	Chooralum

TABLE NO. 10.

<i>Phratry.</i>		<i>Husband.</i>	<i>Wife.</i>	<i>Child.</i>
B	{	Chingulum	Jamerum	Yacomary
		Chooralum	Yacomary	Jamerum
A	{	Jamerum	Chingulum	Chooralum
		Yacomary	Chooralum	Chingulum

From eight separate tribes we have now illustrated the development of two communities, one represented by Table No. 7 and the other by Table No. 10, each of which has four intermarrying divisions in its social organization. At a later period these two communities, whether as the consequence of war or peace need not be considered, became consolidated into their existing form, and the course followed in arriving at this result will now be investigated.

A man of the Choolum section in Table No. 7 took the wife of a man belonging to the Jamerum section in Table No. 10; Cheenum took the wife of Yacomary; Jamerum of Table No. 10 took the wife of Cheenum in Table No. 7, and Yacomary took the wife of Choolum. All these men belong to the A phratries in their respective tribes. Again, a Chingulum man took the wife of a Bungaringie; Chooralum annexed Palyaringie's spouse; Bungaringie took Chooralum's wife and Palyaringie took the wife of Chingulum.

These four men belong to phratry B. The intermarrying sections of the new organization and those of the resulting offspring are as follows :

TABLE NO. 11.

<i>Phratry.</i>		<i>Husband.</i>	<i>Wife.</i>	<i>Child.</i>
A	{	Choolum	Chingulum	Palyaringie
		Cheenum	Chooralum	Bungaringie
		Jamerum	Palyaringie	Chooralum
		Yacomary	Bungaringie	Chingulum
B	{	Chingulum	Choolum	Yacomary
		Chooralum	Cheenum	Jamerum
		Bungaringie	Yacomary	Cheenum
		Palyaringie	Jamerum	Choolum

This redistribution of the wives of the men necessarily varies the brother-in-law relationships. The men of the Choolum section in Table No. 11 exchange sisters with the men of the Chingulum section ; the Cheenum men marry the sisters of the Chooralum men and *vice versa*; the Bungaringie men and the Yacomary men exchange sisters as wives ; and lastly the Palyaringie and Jamerum men mutually intermarry with each other's sisters. In every case, however, the section name of each man's offspring remains as it was prior to the coalition—thus, Choolum's children are called Palyaringie the same as they appear in Table No. 7, and Palyaringie's progeny still retain the name of Choolum.

According to Table No. 11 the wife of Choolum should be a Chingulum woman, but by virtue of tribal custom he has the alternative of marrying a Chooralum. If he choose a Chingulum his children will be Palyaringie, but if he take a Chooralum wife the progeny will be Bungaringie, the section name of the offspring being regulated by the mother's division. A man of the Cheenum section, whose tabular wife is Chooralum, can marry a Palyaringie woman. In other words, the men of the pair of sections, Choolum and Cheenum, can exercise their choice of a spouse over the same two sections of women. Similar privileges are possessed by the men of the other pairs of sections, namely, Jamerum and Yacomary—Chingulum and Chooralum—and Bungaringie and Palyaringie, who can select their wives from either of the corresponding pairs of females in Table No. 11. Numbers of different totems are annexed to the divisions.

The theory of the coalition of a number of small tribes within the

area where the Wombya organization obtains is supported by the fact that in neighboring districts we discover that some of the sections appearing in Table No. 11 intermarry with others having an entirely different name, and the offspring are also differently designated. For example, in the Inchalachee tribe a Palyaringie man marries a Boonongoona, and the children are Boolangie. This could be accounted for by supposing that in former times the Palyaringie tribe became separated into two or more segments, one branch going into certain territory, whilst another branch traveled in a contrary direction, and that each branch ultimately became incorporated with different people, thus participating in the formation of diverse communities in which many of the section names are dissimilar. The same may be said of Bungaringie, who takes a Thimmemill spouse, and the progeny are Warkoo. On the Victoria river Chingulum marries a Chamaja woman and his children are Jambajunna; the wives and the offspring in each case being quite different to those in Table No. 11.

In examining the social structure of a large number of tribes, it is seen that certain section names seem to be more universal or persistent than others. For example, the name Chingulum, or its dialectic variations Jungulla, Changally, Kingulla, etc., is found in nearly every one of the tribes containing eight sections, from the Gulf of Carpentaria all the way across the Northern Territory, and extending onwards far into Western Australia. There is at the present day a tolerably numerous tribe named Chingalee who occupy a considerable tract of country between Daly waters and Newcastle waters in the Northern Territory. And although we cannot place too much reliance on the similarity of names, it is possible that this may be a remnant of the larger and more widespread nation from which the section name Chingulum has arisen.

The section name Cheenum, or its variants Jinagoo, Chanama, Chunainjah, Janna, etc., is also found among most of the communities in the country lying between the northwest corner of Queensland and Western Australia. This seems to justify the inference that at an earlier period there were, among others, two tribes called Chingulum and Cheenum, each of which were spread over an immense extent of country, and that they either conquered other tribes or were themselves subjugated, or otherwise became amalgamated with the people around them or with subsequent influxes from elsewhere, in the way I have endeavored to illustrate in prev-

ious pages, and so became scattered among a large number of different communities, as we find them at the present time.

In the foregoing pages I have endeavored to give a brief outline of the Social Organization of the Australian aborigines by tracing it through its various stages of development by means of examples taken from the marriage laws still in operation in different parts of the continent. Having studied this branch of the subject for many years, I am led to the conclusion that neither promiscuous sexual intercourse nor what has been called "communal or group marriage" has ever existed among Australian tribes. I feel equally clear that the system of divisions into sections was not devised for the purpose of preventing consanguineous marriages, but was developed in the way I have attempted to explain in this paper.

INITIATION CEREMONIES.

In my descriptions of the initiation ceremonies of various Australian tribes, which I have from time to time contributed to different learned societies, I have reported that there is a feigned quarrel between the fathers of the novices and the men who muster the latter out of the camp for the purpose of passing them through the ordeal of the inaugural ceremonial. I have also detailed how human blood is sprinkled upon stumps of trees; in other instances how it is collected in native vessels and eaten; and also how one or more of the men are killed to furnish a cannibalistic feast for the people present.

This has suggested to me that perhaps the ceremonies were considerably modified, if not originated, during the wars between the clans or tribes referred to in the chapter on "Social Organization." If all the adult males were killed, as at present, then it is reasonable to expect that the young captive boys would be brought up in conformity with the ancestral customs of their captors. For the purpose of doing this it would be necessary to remove them from the influence of their mothers, who would naturally cling to the customs of their forefathers and endeavor to bring up their sons with the same views.

If we investigate the procedure in the initiation ceremonies current at the present day, for an example of which the *Bora*¹ of the Kamilaroi tribe may be selected, we see that certain neighboring

¹ R. H. Mathews, "The Bora of the Kamilaroi Tribes," *Proc. Roy. Soc. Victoria*, Vol. ix, New Series, pp. 137-173.

tribes assemble at a common meeting ground and that the men of a distant tribe take charge of the novices of another people who are more or less strangers to them. We also observe that the novices are taken away from their mothers at daylight, the time that an aboriginal tribe always makes an attack on an enemy. The mothers of the boys are led to believe that an enemy really comes into the camp and bears off their sons in a mysterious manner. The women are prevented from seeing what actually takes place, owing to their being hidden under grass, bushes, rugs, bark, or other covering, but they hear what they believe to be the awful voice of the enemy and the trampling of his heavy footsteps.

In describing the Kamilaroi *Bora* I have stated that great sexual license is permitted to the men of the visiting tribes. In ordinary everyday life a man is restricted to women of a certain section or *totem*, but at meetings for initiation purposes these rules are much relaxed, and a man is allowed to have intercourse with women of different sections and degrees of affinity, who would be altogether forbidden to him on other occasions. At the *Bora* ceremonies, as soon as the novices and all their own men are out of sight, some men of the strange tribes remove the covering from off the women and take them away to another camp, where the men remain with them for the purpose of superintending the due performance of all the tribal regulations. The women are, in effect, prisoners during these proceedings.

All these elements of the ceremonial may be emblematical or commemorative of an early morning raid of one hostile tribe upon another in the distant past, one detachment of the men taking charge of the women, while another detachment takes the youths away to be instructed in the customs and traditions of their conquerors. The comparison becomes all the more realistic when we discover that during their sojourn in the bush with the old men the youths are shown many things which are entirely new to them. They are taught another language, known only to the initiated, which may be typical of the language of their subjugators; and even their own personal name is changed to another, which is kept a secret from their mothers and sisters and all the women of the tribe.

In native warfare, as already stated, the women are always preserved and taken as wives by the victorious party.¹ The sexual

¹ Several of the vanquished party usually escape by flight; they are chiefly active men, but young women often get away with them.

liberties to which I have referred probably had their archetype in the libidinous orgies which took place when a bevy of strange females was secured. The captors would make indiscriminate use of the women for some little time, until they had leisure to effect an individual distribution of them. This would take place as soon as the totems of the women and other particulars were ascertained. At the present day, when a woman is allotted to a man as his wife, she must first submit to copulation by a number of men, whose intercourse with her at other times would be a serious offense.

While the *kooringal* are marching off with the novices in their custody, two men called *buddenbelar* rush out of the scrub and each of them throws a boomerang at the aggressors. They then retreat hastily and go away to fetch the *beegay*, whose participation in the ceremony practically amounts to the rescue of the novices from the *kooringal*. This is suggestive of a time when a number of small tribes, occupying a large area, had been more or less friendly and helped each other against a common foe. If an onslaught were made upon any of these tribes such of the men who escaped would seek the protection and intervention of some of their allies who might be powerful enough to punish the offenders and liberate their sons. Such a rescue may be symbolized by the interference of the *beegay* at the present time, and the subsequent return of the novices to the *thurrawonga* camp during the *Bora*.

All the tribes who arrived in early times were probably small and lived in constant fear of surprisals by the people around them, so that it would be unwise for them to confide the details of their sacred ceremonies to the women, who might at any time be carried off by conquerors and the secrets exacted from them by coercion. This may have given rise to the existing custom of placing a covering over the women when the youths are being taken away.

It is a reasonable assumption that from the earliest period each band of adventurers brought certain rites with them. Owing to a superstitious adherence to former patriarchal customs, especially strong in all primitive peoples, we would not expect to find that any new system of initiation would altogether abrogate and supersede the older type, but would be blent or incorporated with it.

I am inclined to think that the plucking out of the hair—observed among the Narrinyeri and other tribes of South Australia, a part of the Barkunjee in New South Wales and among some of the Victorian tribes—has been handed down from the original inhabitants,

because analogous customs have been reported among Negroid people elsewhere.

As the Tasmanians have been assumed to be the remnant of the autochthonous race, some items of their initiatory customs may be mentioned. J. Bonwick, in referring to this subject, says:

"From all that I have been able to gather in my inquiries among very old residents of Van Diemen's Land it is my opinion that the custom in connexion with young-men-making [initiation] in New Holland, existed more or less with the different tribes of the Tasmanians."¹

J. J. de la Billardiére, speaking of his visits to the Tasmanians between the years 1791-1793, says:

"We observed some in whom one of the middle teeth of the upper jaw was wanting, and others in whom both were gone."²

The same author says in another place:

"We were much surprised to see most of them holding the extremity of the prepuce with the left hand."

In a vocabulary appended to his work he gives the native word *loira* for powdered charcoal, with which they covered their bodies. Among many Australian tribes one or more front teeth are punched out; in others the men take hold of their genitals and exhibit them to the youths; and the smearing of their bodies with powdered charcoal and grease is widely practiced in connection with initiation ceremonies.

Speaking of the corroborories or dances of the Tasmanians, J. Backhouse³ reports:

"In these dances the aborigines represented certain events or the manners of different animals; they had the emu dance, the thunder and lightning dance, and many others."

R. H. Davies,⁴ in referring to the same subject, says:

"One is called the kangaroo dance, and is, along with some others, most violent. . . . Some of these dances are evidently lascivious."

¹ *Daily Life and Origin of the Tasmanians* (London, 1870), p. 202.

² *Account of a Voyage in Search of La Pérouse* (London, 1800), Vol. ii, pp. 72 and 76.

³ *Narrative of a Visit to the Australian Colonies* (London, 1843), p. 82.

⁴ *On the Aborigines of Van Diemen's Land* (Launceston and London, 1846), Vol. ii, p. 416.

Restrictions respecting food,¹ similar in character to those in operation in Australia, have also been observed in Tasmania, some people being allowed to eat only the male, others only the female, of particular animals; whilst certain kinds of fish were forbidden to some tribes.

J. Bonwick² tells us of the use of the bullroarer in Tasmania:

"The wise men, or doctors, . . . twirled round the magic *mooyumkarr*, an oval piece of wood with a string, . . . which must on no account be seen by females." He also states, at page 192 of the same work, that "circles have been recognized in the interior of Van Diemen's Land."

R. H. Davies³ reports that when "the males arrive at the age of puberty they are deeply scarified on the shoulders, thighs and muscles of the breast."

The few references herein made to the customs of the Tasmanians have been taken from the works of early writers which were published between thirty and a hundred years ago. It is likely that the great secrecy which surrounds the celebration of inaugural rites generally had the effect of precluding the white population from witnessing or reporting what was done on such occasions.

An attempt has been made in this paper to deduce the inception of many parts of the initiation ceremonies of Australian tribes from their conflicts of the past by showing their strong resemblance to what actually takes place in internecine wars among the natives of the present day. During the long isolation of tribes, or confederacies, special characteristics have developed, and modifications have resulted in accordance with varying circumstances, among the people of different districts, until the elaborate forms of the ceremonies as we now find them have been evolved.

EXPLANATION OF THE MAP.

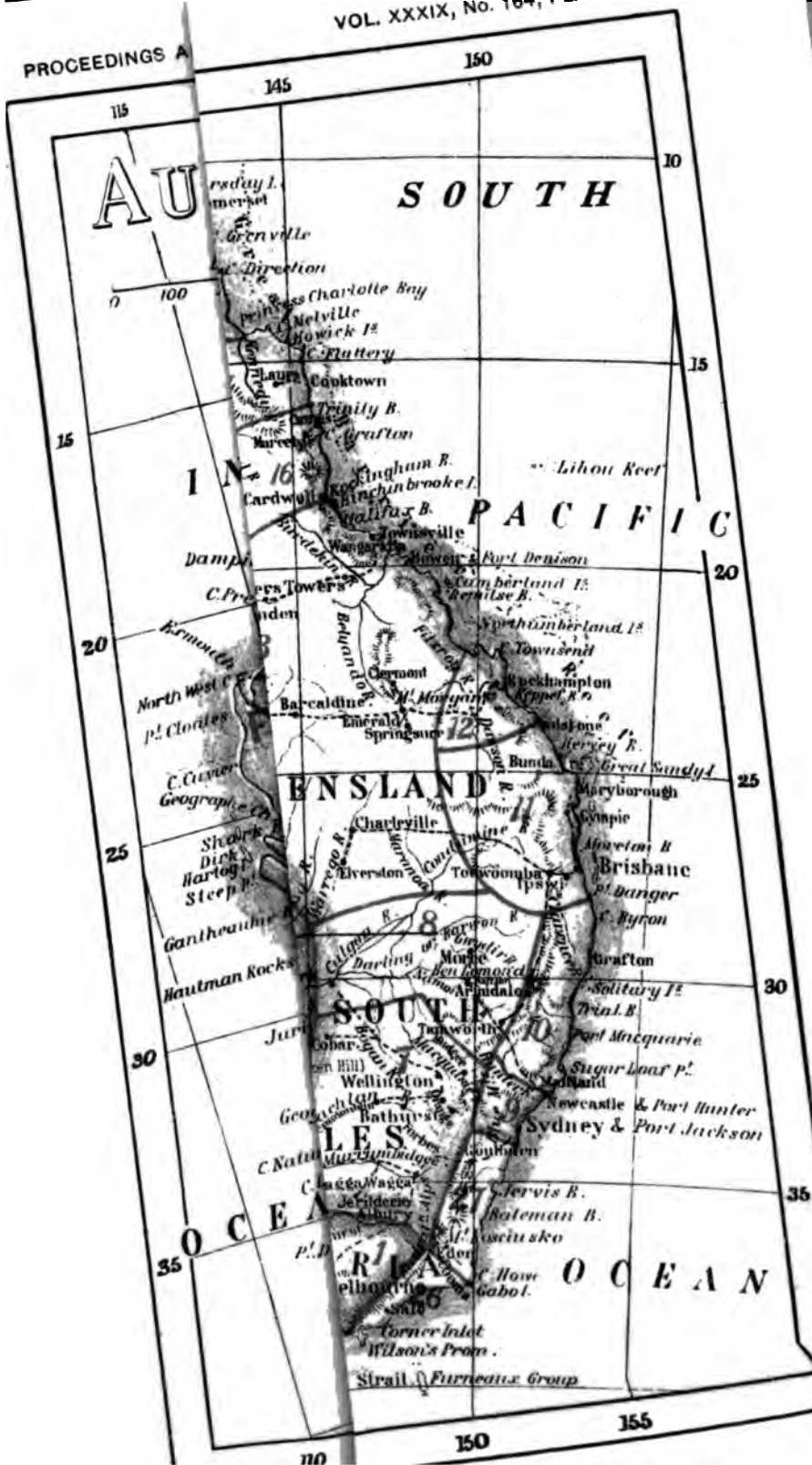
As already stated, a tribe is divided into sections, which are known by distinguishing titles. If we travel through any considerable extent of territory we discover that the names of these divisions vary in different districts. In a certain tract of country the

¹ J. B. Walker, *Notes on the Aborigines of Australia* (Government Printer, Tasmania, 1898), p. 9.

² *Daily Life and Origin of the Tasmanians* (London, 1870), pp. 175, 176.

³ *Op. Cit.*, p. 412.

PROCEEDINGS A



1

sections will be known by one set of names, whilst among adjoining tribes a different nomenclature will be employed. Aggregates of tribes holding the same divisional names may, for convenience of reference, be called communities or nations.

I have prepared a map, showing New South Wales, Queensland, Victoria, South Australia and Western Australia, on which is shown the position of the boundaries of the several nations, each of which is distinguished by a numeral, from 1 to 27. In explaining this map I shall commence with the several nations possessing two divisions, then those with four sections, next the tribes with eight divisions, and lastly a brief reference will be made to those tribes whose marriage laws are of the *tooar* type. The different systems, with the territory occupied by each, can be readily referred to if arranged in tabular form, as in Tables Nos. 12, 13 and 14.

TABLE NO. 12.

<i>No. on Map.</i>	<i>Nation.</i>	<i>Phratry.</i>	<i>Sections.</i>
1	Bangarang	{ A B	Boonjil Wah
2	Booandik	{ A B	Krokitch Kamatch
3	Barkunjee	{ A B	Muckwarra Keelparra
4	Yowerawarrika ¹	Same as in Table No 1.	
5	Parnkalla	{ A B	Matturri Kirraroo
6	Kookatha	{ A B	Kookoojaba Koojeebinga
6a	Tardarick	{ A B	Wartungmat Munitchmat

The above seven nations adjoin each other, and the total territory occupied by them collectively is distinguished on the map by a pink edging. It will be observed that this includes nearly the whole of Victoria, about a third of New South Wales, part of the southwest corner of Queensland and a considerable portion of South Australia and Western Australia.

¹ I wish to thank Mr. A. M. Helling for his valuable help.

TABLE NO. 13.

<i>No. on Map.</i>	<i>Nation.</i>	<i>Phratry.</i>	<i>Sections.</i>
7	Wiradjuri	Dilbi Kupathin	Murri, Kubbi Kumbo, Ippai
8	Kamilaroi		
9	Darkinung		
10	Thangatty	A B	Kurpoong, Marroong Wirroong, Womboong
11	Dippil	Karpeun Deeajee	Barrang, Banjoora Bunda, Derwine
12	Kooiimerburra	Wootaroo Yungaroo	Moonal, Karilburra Koocealla, Koorpal
13	Kogai	Ootheroo Mallera	Woongo, Kabaroo Bunburri, Koorgilla
14	Mycooloon	A B	Jimalingo, Bathingo Maringo, Kooperungo
15	Goothanto	A B	Erainyer, Ararer Loora, Awonger
16	Warkemon	Same as in Table No. 4.	
17	Koonjan	A B	Ajeereena, Arennymung Perryning, Mahngale
18	Joongoonjie ¹	Jamagunda Gamanutta	Langenam, Namegoor Packwiky, Pamarung
19	Arrinda	A B	Koomara, ² Penunga Bultara, Parulla
20	Yeeda ³	A B	Kimbera, Bannicka Baljarra, Boorongo

It will be observed that each of the above fourteen nations is divided into four sections, and therefore all belong to the same system. The aggregate of their territory, which is edged green on

¹ My best thanks are due to Rev. N. Hey for his willing assistance.

² A variation of these four section names is found among the tribes on the Upper Georgina river, and extending westwards into the Northern Territory, as follows :

<i>Phratry.</i>	<i>Husband.</i>	<i>Wife.</i>	<i>Child.</i>
A	Belthara	Goobilla	Drungwara
	Koomara	Drungwara	Goobilla
B	Goobilla	Belthara	Koomara
	Drungwara	Koomara	Belthara

³ This tribe inhabits the Fraser river, Derby, the Lower Fitzroy and southwards toward the Oakover river, Western Australia.

the map, comprises about two-thirds of New South Wales, the greater part of Queensland, a wide strip through the centre of South Australia and more than half of Western Australia.

In dealing with the tribes possessing eight intermarrying divisions a table will again be employed.

TABLE NO. 14.

<i>No. on Map.</i>	<i>Nation.</i>	<i>Phratry.</i>	<i>Sections.</i>
21	Wombya	Same as in Table No. 11.	
22	Ulperra	A	{ Ungarria, Thakamara Thaponungo, Jambena
		B	{ Jungulla, Thapongatee Joopilla, Cubadgee
23	Inchalachee	A	{ Boolangie, Boonongoona Warkoo, Thimmemill
		B	{ Kingulla, Bungaringie Noorachee, Palyaringie

The country inhabited by the three foregoing nations is edged yellow on the map, and comprises a large extent of the Northern Territory of South Australia, with portions of Queensland and Western Australia. There are several aggregates of tribes scattered over this immense area, among each of which the names of the sections differ more or less, but the principle of the divisions in them all is identical. In a paper published in the PROCEEDINGS of this Society, Vol. xxxviii, pp. 75-79, I particularized the eight divisions as found in other tribes, showing the variations in the section names in different localities.

Nos. 24 and 25 on the map represent the Adjadurah and Narinyeri nations respectively, who occupied the country fronting Spencer's Gulf and on the Lower Murray river.

No. 26 is the small nation of the Kurnai in Eastern Victoria, and No. 27 shows the territory of the Thurrawall and allied tribes in the southeast corner of New South Wales.

In the nations Nos. 24 to 27, inclusive, the social structure is after the *tooar* or *yoomree* type already described by me. Adjoining the Great Australian Bight and on the west coast of Western Australia there are also a number of tribes possessing this organization.

After much careful investigation I have succeeded in fixing on the map the position of the blue line from A to B. All the tribes

on the west of this line practice circumcision, but in the country to the eastward of the line the custom is not in force. The line in yellow, from C to D, and continued on along the blue line to B, demarks the eastern limit of splitting the urethra—a genital mutilation having a very wide geographic range over the central and western portions of the Australian continent. The other blue line, from E to F, determines the western boundary of the tribes who practice splitting the urethra and circumcision, neither of these customs being found between that line and the coast of Western Australia. From the point F, along the coastal district to Roebourne and Condon, the rites referred to are not now insisted upon, and it is doubtful if their adoption by the natives there was ever universal.

ON THE OSTEOLOGY OF THE WOODPECKERS.

BY DR. R. W. SHUFELDT.

(Plate IX.)

(Read October 5, 1900.)

INTRODUCTION.

During the past ten years I have been collecting osteological material with the view of making a comparative study of the skeletons of the *Pici*, or suborder of Woodpeckers. In time this material became so extensive that I found I had all of the genera of the North American fauna represented, and had the opportunity of examining into the osteology of many other species from different parts of the world. Being advantageously situated with respect to the large libraries in America, I read and investigated everything that came to my notice upon this subject, and wrote out notes upon the same. Occasionally I printed a brief account of some of the osteological points of interest in this group as they came to hand, but the main bulk of my labors in this direction have long remained unpublished. True it is that in the *Proceedings of the Zoological Society of London* I printed finally (February 3, 1891) a short account of the osteological characters of the *Pici*, with a few brief notes upon the group, but this was nothing more than a partial abstract based upon what had been

accomplished up to that time. Since then all of my descriptions of the skeletology of the Woodpeckers have been gathered together, and I am inclined to believe they form the most complete history of the skeleton in those birds, both in detail and in a comparative way, that has thus far been furnished by anatomists. For making a fair and accurate copy of my collected descriptions and account of the osteology of this important group I am wholly indebted to the kind patience and intelligence of my wife, Alfild, and it gives me great pleasure to thank her here for the assistance she has rendered.

The plates and figures illustrating the present contribution have never heretofore been published, and it is hoped that comparative anatomists will find them useful in their work.

At least three good families of Woodpeckers are known to science—that is, the *Picidae*, the *Picumnidae* and the *Lygidae*—but of these only the first-mentioned, with a variety of its genera and numerous species, is represented in the avifauna of the United States. Naturalists need not be reminded here by name of all of these forms, as the majority of them are familiar to every one. Every genus is represented by a more or less perfect skeleton in the material I have before me at the present writing, and upon which this account will be based; some skeletons I have in large series, as *Melanerpes torquatus*, of which bird I collected a large number in northwestern New Mexico in 1885. Some I have in the young stages, beautifully exhibiting the development of the skull and trunk-skeleton; others, again, are more imperfect. Thanks to the United States National Museum, I have at hand the skeleton of an Ivory-billed Woodpecker, but it unfortunately lacks the skull and some few other bones. The same institution, however, has kindly loaned me a very fair skull of *Campephilus imperialis*. Numerous skeletons of various species of the genus *Dryobates*, of my own preparation, are available, and I am indebted to Mr. Samuel Parker, of Fort Klamath, Ore., for a fine skeleton of *Xenopicus aibolarvatus*. Further, I must not forget to thank my friend Mr. Thomas McIlraith, of Hamilton, Ont., Canada, for a fine skeleton of a male *Picoides arcticus*. I have skeletons in force of every one of our species of *Sphyrapicus*, all of my own collecting and preparation, and by purchase I have obtained excellent skeletons of *Ceophlaeus pileatus*. Dr. W. S. Strode, of Bernadotte, Ill., has

kindly forwarded me skeletons of *Melanerpes erythrocephalus* and *M. carolinus*, and Herbert Brown, Esq., the well-known naturalist of Tucson, Ariz., has, among numerous similar favors, kindly given me the skeletons of a male and of a female *Melanerpes uropygialis*. Of the genus *Colaptes* I have a large assortment, from quarters too numerous to mention on this page. Mr. G. Frean Morcom, of Chicago, and Mr. F. Stephens have presented me with alcoholic specimens of *Dryobates scalaris lucasanus*, from Lower California.

I command few or no foreign forms, but, in addition to much other literature upon them, I have a personal copy of Prof. W. K. Parker's memoir "On the Morphology of the Skull in the Woodpeckers and Wrynecks" (1874).

With respect to the *Picidae*, authoritative writers and ornithologists of all times seem to be of one opinion—that that family, taken in connection with the two others mentioned above, constitute a very distinct and natural group of birds with very evident passerine affinities. The American Ornithological Union considers this group to equal an order, the *Pici*; while here I treat them as one of my suborders, which likewise is designated by the same name.

Both Sundevall and Kessler recognized a separate group for the Woodpeckers (*Pici*), while Huxley's well-known characterization of them as his group, the *Celeomorpha*, is now too well comprehended to render it necessary for me to reproduce it here (*P. Z. S.*, 1867, p. 467). At the time that that distinguished authority promulgated the opinion to which we allude he believed that the vomers in the skulls of some species of Woodpeckers remained distinct throughout life; and, further, saw the nearest affines of these birds in the Passeres (or his *Coracomorpha*).

In the memoir of his, to which I have just alluded in a former paragraph, Prof. W. K. Parker wrote it as his opinion, in referring to the Woodpeckers as a group, that "The fact is they are like early embryos of the Passerinæ, in their palatal region arrested at a most simple Lacertian stage, whilst in other respects they are metamorphosed and specialized beyond any other kind of birds. As far as their upper face is concerned, their arrested 'maxillo-palatines,' symmetrical 'vomers,' 'septo-maxillaries' and feebly developed turbinal scrolls entitle them to a name which shall be a memorial of their Lacertian facial morphology. I therefore propose to call them the '*Saurognathæ*.'"

Garrod saw the vomer of *Gecinus viridis* in the bone which Parker designates as his "medio-palatine," and of the "vomers" of Parker, Garrod has said that "they look much more like the inner edges of the imperfectly ossified palatines." Both opinions are candid, and simply point to a difference of opinion in a matter of identity.¹

Still another view: the distinguished ornithotomist Max Fürbringer divides his order *Coracornithes* into three suborders, of which the first is the *Pico-Passeriformes*; and these latter are again divided into three groups, the first of which is the *Pico-Passeres*. Now he subdivides the *Pico-Passeres* into the *Pici* and *Passeres*, and makes the *Pici* include four families, viz., the *Capitonidæ*, the *Rhamphastidæ*, the *Indicatoridæ* and the *Picidæ*.² The *Picidæ* here include the two subfamilies, the *Iynginæ* and the *Picinæ*. With this brief recapitulation of the opinions of former writers, I will now proceed to examine the extensive North American material before me, describe what I find in due order, and, as usual, present what it seems to indicate to me.

OF THE SKULL AND ASSOCIATED BONES IN THE PICIDÆ.

As an introduction to this part of the skeleton, I select a series of skulls taken from adult and nestling specimens of *Colaptes mexicanus*. These are very perfect and have the hyoid arches and other bones of the sense organs associated with them.

In *Colaptes* the premaxillary, slightly decurved throughout, is broad at the base and gradually tapers to its apex. It is composed of dense bone, but apparently not much more so than are the other bones of the face. On the proximal moiety of the culmen, the median suture is persistent at all ages of the bird, while laterally, upon either side, the premaxillary, assisted by the nasal, surrounds an elongated, subelliptical narial aperture of no small size. The internarial space is largely filled in by the irregular bones of the turbinal series and by an imperfect, though true, nasal septum.

¹ Compare both text and figures of Prof. Parker's memoir on the "Morphology of the Skull in the Woodpeckers and Wrynecks" (*Trans. Linn. Soc. Lond.*, read 1874) with Garrod's "Note on Some of the Cranial Peculiarities of the Woodpeckers" (*Ibid.*, 1872, pp. 357-360, and his *Coll. Scientific Memoirs*, pp. 117-119), and the figure which illustrates the latter.

² For the details of this classification, see his *Untersuchungen zur Morphologie und Systematik der Vögel*, published at Amsterdam in 1888.

Turning to the skull of a nestling *Colaptes*, we are to note that the frontal processes of the bone under consideration slope *gradually* up on to the frontal region about equally as far as does a nasal on either hand. This cranio-facial region is likewise *sloping* in the adult, though further on we shall see that it is quite different in some other Woodpeckers.

Laterally, the maxillary process of the premaxillary overlaps the corresponding maxillary, so that in the adult, after fusion takes place, the two bones are indistinguishably united, and no suture or process thereafter marks the line of union. At the roof of the mouth, the palatine processes of the premaxillary behave in a similar manner; the prepalatine extremity being the bone that overlaps the backward-projecting process of the premaxillary upon either side. The apex of the premaxillary in all *Picidae* is generally a little truncated off and squarely across.

Mesially, the premaxillary unites to some extent below with the nasal septum, as we so often see it in other birds wherein that partition exists.

Nothing of especial import characterizes the frontal and parietal bones in the cranium of a nestling *Colaptes*. Essentially they agree with the corresponding bones in the immature specimen of any ordinary passerine bird—a large Thrush, for example—where the external superficies of the cranial vault is smooth and rounded.

Owing to the relatively small squamosal, however, they in *Colaptes* descend far down laterally, and this feature can easily be guessed at from a glance at any skull of an adult Woodpecker, where it will be noticed that the lateral processes of the cranium are comparatively near down toward the quadrate.

The frontals and parietals of an adult *Colaptes* do, however, possess characters not yet evident in the skull of the nestling of any of that genus. In the first place, there is the denting of nearly the entire external surface of these parial bones, which is caused by the apices of the quill-butts of the capital feathers. Again, we note in this region, in the adult, the double impressed groove, leading from the supraoccipital prominence by a gentle curve to the posterior periphery of the right narial aperture. This double gutter lodges, as we know, the free ends of the hyoidean apparatus during the life of the individual. Adult *Colaptes* also exhibit a slight tilting up of the postero-superior orbital peripheries, the margins being sharpened and a few perforating foramina occurring



RIGHT LATERAL VIEW OF THE SKELETON OF THE PILEATED WOODPECKER
(SLIGHTLY REDUCED.)



just within their borders, one behind the other down the line. The frontal region between the rims of the orbits above is but moderately broad, and barely concaved.

A nasal bone in the skull of the young *Colaptes* has the usual form seen among the higher passerine types; it is of the holorhinal pattern, and makes the usual articulations with the surrounding bones. As the bird matures a diminutive process is seen to appear upon its posterior margin between the anterior apex of the frontal and an abutting process thrown up on the part of the corresponding maxillo-palatine. Anteriorly it sends a jagged horn of some size forward into the anterior rhinal space. A true lacrymal does not develop in *Colaptes*. The pars plana is large, very complete and of a quadrilateral outline. Postero-externally it sends backward from its angle a long, pointed os uncinatum that normally bears upon the inner side of the jugal bar. *Colaptes*, agreeing with all our United States *Picidae*, exhibits considerable ossification of the turbinal series of bones, although there is a marked simplicity of the arrangement of them. One turbinal seems to be free upon either side, both in this and in other species. Parker has paid considerable attention to the turbinals of the *Pici*, and in briefly alluding to what he saw in other species, in the ninth edition of the *Encyclopædia Britannica* (article "Birds," p. 717), he says that "the 'inferior turbinal,' which has three coils in *Rhea* and *Tinamus* and two in most birds, is in *Gecinus* merely bi-alate; in *Junx* it makes less than a single turn, whilst the alinasal turbinal of that bird has two turns and that of *Gecinus* one. *Gecinus* is in all respects the most specialized, *Picumnus* the most embryonic and *Junx* the most passerine of the *Celeomorphæ*."

In adult specimens of *Colaptes* the interorbital septum is usually entire, though it often shows a very minute central vacuity. When we come to examine other species of Woodpeckers, later on, we will see that this foramen in them is larger and more constant.

The infraorbital bar or zygoma is made up entirely of the jugal and maxillary, the quadrato-jugal not being present. It is straight and slender, being abruptly enlarged at the posterior or jugal extremity, where it is hooked inward to articulate with the quadrate.

Nestling *Colaptes* show the development of a fine pair of orbito-sphenoids, occupying their usual sites at the back of the orbits; and within these cavities, above either orbito-sphenoid, we observe the free edge of the frontal showing its advancing ossification. At

certain points this is peculiar, as little islets of bone occur along

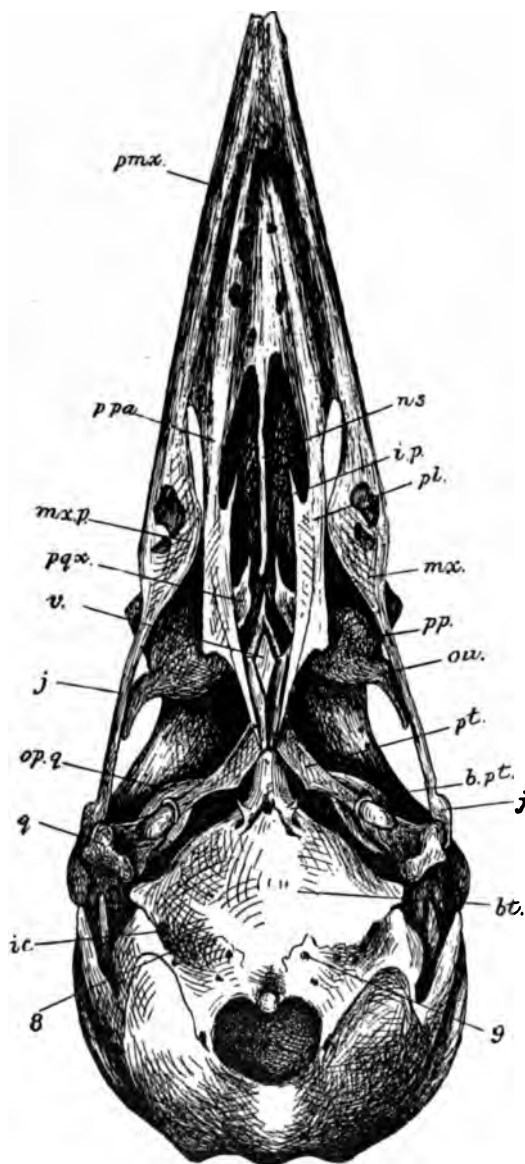


FIG. 1. Skull of adult male Pileated Woodpecker (*Geophila pileatus*): under view, X 2, mandible removed. Drawn by the author. *pmx.*, premaxillary; *ppa.*, prepalatine; *mx.*, maxillary; *o. u.*, os uncinatum; *n. s.*, nasal septum; *p. p.*, pars plana; *pl.*, pterygoid; *ip.*, interpalatine spine; *j.*, jugal; *bpt.*, basitemporal process; *mxp.*, maxillo-palatine; *bt.*, basitemporal; *v.*, vomer; *p. x.*, palatine spur; *q.*, quadrate; *o. p. q.*, orbital process of quadrate; *i. c.*, foramen for internal carotid artery; *v.*, foramen for vagus nerve; *g.*, foramen for hypoglossal nerve.

this free edge, which are afterward absorbed by the main bone. This process occurs in other parts of the skulls of Woodpeckers.

Passing to the base of the skull, we see a number of points of interest in *Colaptes*, and some few features that are not present in the general run of ordinary existing birds. The basitemporal region is smooth, broad and deep antero-posteriorly. Nothing especially noteworthy characterizes the large foramen magnum, with its relatively small condyle, nor the foramina in front of it upon either hand. A supraoccipital prominence is also present, being but fairly developed, and never pierced by foramina in the adult individual.

Either tympanic bulla is cowrie shaped, showing a characteristic antero-posterior slit, and, according to Parker, this unique feature of the Woodpeckers is brought about by one of these bullæ being formed by not only the corresponding exoccipital, but by two, or more often several, tympanics (usually three). The basitemporal also enters into its formation (see Fig. 1).

A quadrate is of good size comparatively, with its orbital process stout and truncated at its apex. The "mastoidal limb" is short, and the mandibular facets peculiar. Either pterygoid is noted for its pointed and lengthened meso-pterygoid, which, when *in situ*, reaches forward to the palatine spur of the same side. On the upper edge of a pterygoid a prominent and pointed muscular process is developed; it has the same direction forward and inward as has the shaft of the bone. This shaft is thin and much compressed, while the quadratal head is small and inconspicuous. When articulated, the palatal heads do not meet mesially, or they may just barely touch each other. Occasionally we find in old specimens of *Colaptes* minute osseous "prickles" at the usual sites of the basipterygoid processes, and they represent aborted basipterygoids. They are more prominent in certain other Woodpeckers of our avifauna, but it is only rarely that the corresponding process is ever seen upon the pterygoid. It is present, though very rudimentary, in a specimen of the Pileated Woodpecker before me.

The inferior border of the rostrum is rounded and not very thick transversely. It is very sharp in front, and below is usually carried out as a little spine. Either palatine is narrow, especially anteriorly beyond the maxillo-palatine, or what is known as its *pre-palatine portion*. Distally this extremity is underlapped by the palatine process (of the same side) of the premaxillary. Poste-

riorly the postero-external angle is obliquely truncated, and the head for the corresponding pterygoid is completely aborted, the palatine being simply drawn out at this end. About midway up its mesial border it develops a conspicuous interpalatine process, directed forward, while another free process, also directed forward, springs from that point on the bone where the bifurcation of the vomer articulates in a great number of ordinary birds. This last process, so variable and so conspicuous in nearly all *Pici*, I here designate as the *palatine spur*. During ossification of the mesial and external margins of either prepalatine minute islets of bone are left, and these may persist or they may not persist during the life of the individual.

The vomer, mesial in position, is situated rather far back between the palatines, and is non-bifurcated posteriorly. It is pointed in front and pointed behind, and rests for nearly its entire length upon the nether aspect of the sphenoidal rostrum. In some Woodpeckers it is quite compressed in the vertical direction and of somewhat of a lozenge-shaped outline. That it is not forked posteriorly need not surprise us, for that also is the case with the semi-rudimentary vomer in *Geococcyx* and some other birds.

The lower margin of the mid-lying nasal septum is long and scraggly; while above, the laminated portion of the bone is not completed up to the premaxilline roof. A maxillo-palatine is of considerable size, broad, horizontally flattened, perforated upon its nether side by foramina, and finally it sends backward from its mesio-posterior angle a blunt-like process. This last feature is absent in many *Pici*, and here in *Colaptes* the inner margin of a maxillo-palatine barely comes in so far as the outer border of the corresponding palatine, and so these bones are widely separated from each other in the middle line.

In *Colaptes* the mandible is of the typical V-shaped pattern, long and narrow, with a very shallow symphysis. Its ramal sides are rather shallow, upright and with rounded superior and inferior borders. A ramal vacuity is absent, or reduced to a mere pinhole or smaller. The angular extremities are rounded, and offer no special process on either side. This jawbone is pneumatic, and its hinder articular ends present the usual ornithic characters, with perhaps an arrangement of the mandibular facets peculiar to the *Pici*, but departing but little from what we find in almost all ordinary avian types. In the adult all the sutural traces among the splint-bones composing the mandible have disappeared.

A very curious condition of the sclerotal plates of the eyeball exists in *Colaptes* and all other American *Pici* wherein I have examined them. These plates very thoroughly fuse together, although in the nestling at the time it leaves the nest they are still separate. In the case of the sclerotals of a specimen of the big Imperial Woodpecker before me this fusion is so perfect that all the sutural traces among the plates have well-nigh disappeared entirely. Such a condition is not common among highly organized birds.

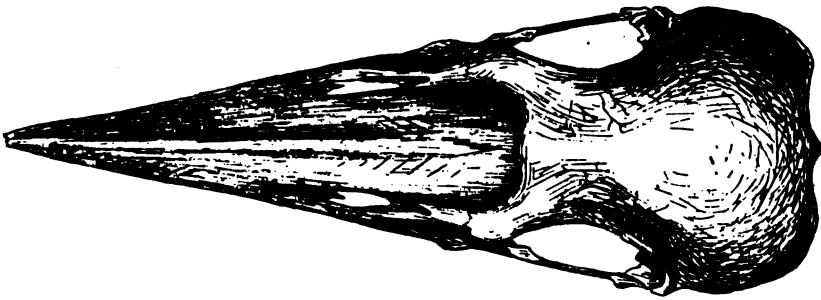


FIG. 2. Superior view, natural size, of the skull of the Imperial Woodpecker (*C. imperialis*). Drawn by the author from specimen No. 1464 of the osteological collections of the United States National Museum.

The present writer has not paid any very special attention to the bones of the ear in the *Pici*, but Parker has said of them for *Geococcyx viridis* that "The stapedial apex of the largely aborted second postoral arch has some peculiarities of importance. The true stapedial or periotic portion is rather large and roughly oval, the side toward the 'opisthotic' bar separating the fenestra ovalis from the fenestra rotunda being straightest.

"The *capitular* portion of the arch, continuously ossified with the base, is the flattish 'medio-stapedial'; a bony rod from this bar runs down the anterior 'infrastapedial' bar, bringing to mind the small bone in the 'stapedius' muscle of the mammal; it is its *symmorph*. This double 'infrastapedial' is new to me; it ends below in a spatulate stylohyal, which has a proximal ossicle just below the infrastapedial fenestra. The extrastapedial is falcate and broad-backed; the 'suprastapedial' is small; and from it and from the proximal end of the extrastapedial a fibrous fan arises, which supplements the small 'tubercular' head of this facial rod. The

proximal portion of the large 'stapedial fenestra' is hidden in this view; but it scoops the falcate 'extrastapedial' beneath its thick outer or back part" (*Trans. Linn. Soc.*, read 1874, p. 10).

Passing to the *hyoidean apparatus* of *Colaptes*, we are to observe that the epibranchials of the thyrohyals are exceedingly slender rods of bone, and have their extremities resting just within the posterior periphery of the right external nostril.

In specimens before me the *left* epibranchial is several millimetres longer than the right. From this point they lie along in the groove on top of the skull, and curving round behind the cranium, join similar-fashioned ceratobranchials at points about opposite the position of the vomer. The ceratohyals are small and fuse together to form a delicate arrowhead-shaped bone, which articulates posteriorly with the long, single, highly ossified basi-branchial. There is no urohyal.

Other *Pici* have the epibranchials curl round the orbit as in the genus *Picus* (see Fig. 6). We are now in a position to make certain comparisons with the skulls of other *Pici*, comparing them with those structures we have just had under consideration in *Colaptes*, and first let us take up the skulls in certain species of *Melanerpes*.

Melanerpes torquatus (Lewis's Woodpecker) offers us some wonderfully interesting differences. It possesses a comparatively broad skull, with ample brain-case, which latter is externally rounded and smooth. In the frontal region it is rather broad between the superior orbital peripheries. The grooves for the ends of the hyoid are very shallow, barely perceptible, and then only occur no farther forward than the postfrontal region. At the cranio-facial hinge, which is directly transverse, the frontals very slightly roll over on the nasals and the premaxillary. This remarkable picine character is far more distinct in other genera. We find the interorbital septum absolutely entire in the adult, while a very ample quadri-form pars plana is seen, but a distinct os uncinatum does not appear to be present, and the angle where it occurs is not especially produced.

Although the tympanic bullæ are somewhat cowrie-shell shaped, they are by no means so conspicuously so as they are in *Colaptes* and some other forms. The basiptyergoid processes are notably rudimentary, and hardly to be seen in some skulls of this species. Picine in their general pattern, the pterygoids show but a compara-

tively reduced process on either one for muscular attachment, and when articulated *in situ* they are seen to touch in the median line.

Either palatine has its internal and external laminae rather more curled downward as compared with the thin, horizontally flattened bones of *Colaptes*. The postero-external angle in each develops a definite process, which is directed backward. Individuals vary with respect to the lengths of the palatine spurs, they being markedly longer in some than in others, but *their anterior ends are always free* in this species. Inner and outer borders of the palatines are *not* ragged, but very smooth and straight, inclining one to believe that the ossification along them is different from what I described for *Colaptes*. A free turbinal is found in either rhinal chamber. The maxillo-palatines are very much reduced, and strikingly narrow transversely, while the vomer appears to be absent. I examined seven specimens to satisfy myself of this latter fact. The posterior reduced ends of the hyoidean apparatus only reach up to the vault of the cranium; they are very elastic even in the long dried skeleton, and moreover they are *flattened* in the vertical direction.

In the mandible the symphysis is relatively deeper than we found it in *Colaptes*, and the foramen in either ramus a little larger.¹

Our Red-headed Woodpecker (*M. erythrocephalus*) essentially repeats what we have just described above for *M. torquatus*. In 1879 I collected an old male of this species at Fort Fetterman, Wyo., and its skeleton is now at hand; since then several specimens have been presented me, and chiefly by Dr. Strode, of Bernadotte, Ill., to whom my thanks are due for them.

A vacuity may or may not exist in the interorbital septum of the Red-headed Woodpecker, and at the cranio-facial hinge the rolling forward of the frontals is not nearly so evident. The ends of the hyoid come higher up on the skull, reaching as far forward as the mid-point between the orbits. The muscular process on either pterygoid is purely rudimentary, and I fail to find a lacrymal in any of this genus. No vomer is developed, but in a specimen before me the beak of the rostrum supports a curious hairlike spine extending forward in the middle line for several millimetres. In

¹I am not quite confident that the ramal vacuity we find in the jaws of *Colaptes*, *Melanerpes* and the Imperial Woodpecker corresponds with the true ramal foramen as seen in other birds (Passere:). Careful comparisons rather incline me to think that it does not.

the mandible the posterior angular process is inclined to be slightly more produced.

Superficially, the skull of *Melanerpes uropygialis* almost resembles that of some of our more delicately structured Thrushes.¹ All the bones composing it are notably thin and semi-transparent, more especially those of the brain-case and frontal region. There is an os uncinatum present, while the interorbital septum is, as a rule, entire. The lower border of the nasal septum ossifies, and the anterior border of the external narial aperture is curled inward to meet the same of the opposite side. Mesially, these coössify and form a transverse partition at the point in question. Viewing this skull from above, we find the cranio-facial region much as it exists in *Colaptes*—that is, the frontals do not bulge over the ends of the premaxillary. None of the birds in this genus seem to have the external vault of the cranium dented by the butts of the quills of the capital feathers, and the ends of the hyoid rarely reach so far forward as the mid-point of the frontal space between the superior margins of the orbits. In this Gila Woodpecker we find the palatines much the same as they exist in *M. torquatus*, and the same remark applies to its mandible and hyoidean apparatus.

Melanerpes carolinus has the skull and associated parts very much like the corresponding structures in *M. uropygialis*, though, nevertheless, it has a specific *facies* of its own—a *facies*, however, that would compel the comparative osteologist to sink to insignificant details to define. But, exasperating as this puzzling intergradation is among the skeletons of these Woodpeckers, it is an exceedingly interesting picture to take in by the eye.

In *M. carolinus* the tympanic bullæ are so reduced as hardly to call to mind the cowrie-shell-shaped cavity at all, and the 'slit' is comparatively wide. We find in this skull also that the postero-external angles of the palatines to be *rounded* off, thus differing markedly with *M. torquatus* in this particular. No vomer is present. Maxillo-palatines are very narrow, and an os uncinatum seems to be absent. *M. aurifrons* has also been examined, but requires no special comment.²

I have also examined skulls of the Narrow-fronted and California

¹ Owing to the kindness of my friend Mr. Herbert Brown, of Tucson, Ariz., I have skeletons of both male and female specimens of this species.

² I am indebted to Mr. F. Stephens for several specimens of this species.

Woodpeckers of this genus, and they all present essentially the main cranial characters alike.



FIG. 3. Right lateral view, life size, of the skull of the Imperial Woodpecker mandible removed; same specimen as shown in Fig. 2.

Ceophilaus pileatus is a very large Woodpecker, and the sole representative of its genus in this country. Its skull and associated parts present us with a number of characters of interest, some of which are different from those discussed in *Colaptes* and *Melanerpes* (see Fig. 1). Two skeletons of this pileated Woodpecker are before me, and both are from adult males. One of them has a skull eight centimetres long by nearly three centimetres wide at its widest part over the quadrates. Viewing it from above, we are struck by the great width of the superior osseous mandible, especially at its base. This part of the skull is much compressed from above downward—a fact which has its due effect upon the form of the external narial apertures. The frontal region slopes gradually down upon the premaxillary over the cranio-facial hinge. As in *Colaptes*, the gutters for the accommodation of the ends of the hyoid are very distinct, and that apparatus passes to the right nostril, as in the form we have just mentioned. For the rest, on this aspect of the skull in the Pileated Woodpecker, we find a handsomely rounded cranial case, which is pitted all over the parietal and postfrontal regions in a manner already noted for other forms above. Looked at from behind, we note a well-marked supra-occipital prominence, while farther along, on either hand, the tympanic bullæ are unusually well developed, having the picine character of these parts brought up to their comparative maximum size. Coming to the infraorbital bar, we find it composed only of the jugal and maxillary, the two forming a straight, stout rod, which is laterally compressed, and enlarged and hooked at its

proximal end. The interorbital septum exhibits a rather large subelliptical vacuity at its centre. Pars plana is large and thick through antero-posteriorly; its lower outer angle is produced backward by a long os uncinatum. Rudimentary basiptyergoidal processes are present, and the corresponding vestigial apophyses are to be seen upon either pterygoid. Otherwise these latter are much as we find in the *Pici* generally, the hooks for muscular attachment being well produced. Mesially, between the palatine a large vomer is seen to be present; it has the form of a spear-head, with its anterior angle produced forward as a delicate spine. Turning to a palatine bone, we find it narrow and straight, and of nearly equal width throughout. Its postero-external angle is bluntly produced, while behind it makes the usual picine articulation with the pterygoid of its own side. The palatine spur is *short*, freely pointed in front and appears more as an outwardly curled part of the palatine lamina proper. It is curious in possessing a distinctly produced process upon its outer aspect near the middle. This form of the palatine spur is quite different from that of any other Woodpecker that I have ever examined. Running forward from the apex of the interpalatine spine there is a ragged string of subossified tissue that is again anchored in front to the mesial border of the bone. In this structure we may find several islets, of an elongated form, of true bone. I consider them to be, as I do in other species already mentioned, detached parts of the prepalatine, which is but poorly ossified along the border in question. This imperfect mode of ossification is extended to the mesial subnaso-septal bar, which we here find to be composed of the same subosseous tissue containing elongated granules of true bone. Detached turbinals are found in the narial chambers of the Pileated Woodpecker, but these parts seem to depart but little from what has already been described for other picine types.

There is a special character that should be noted in the skull of *Ceophlaeus*, and it is the *raised* osseous line that runs mesially down the column of the premaxillary. This character is well seen in the Imperial Woodpecker also, but is absent in representatives of the genus *Colaptes* and *Melanerpes*.

Our Pileated Woodpecker has a very strong mandible, of a form usually seen among birds of this group. Posteriorly the ramus is deep in the vertical direction, and the downwardly convex border below is here much roughened, a character it exhibits in com-

mon with the Imperial Woodpecker (see Fig. 4). Imperfect as the skull of the individual of this latter species is that I have for examination, it yet presents us with a number of very important characters.¹ Upon superior aspect, this skull has the general characters of the skull of a Pileated Woodpecker; it differs, however, in having the bones of the frontal region to some extent bulging over the broad superior base of the premaxillary (see Fig. 4). Relatively the vault of the cranium in *C. pileatus* is higher

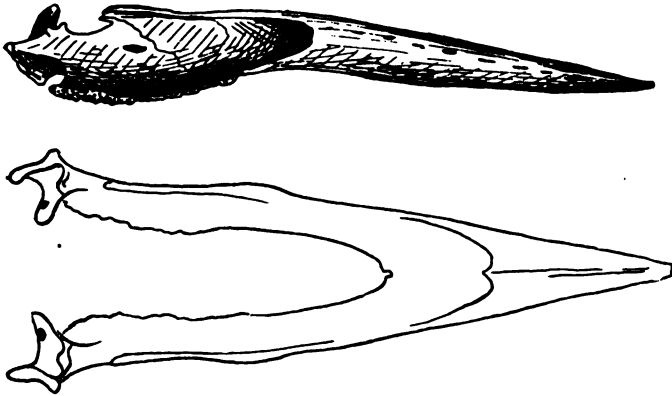


FIG. 4. (Upper one.) Right lateral aspect of the mandible of the Imperial Woodpecker.

FIG. 5. (Lower one.) Superior view of the same bone and in outline. Both figures natural size and drawn by the author from the mandible belonging to the skull shown in figure 2.

and more rounded than it is found to be in the Imperial Woodpecker; in other words, the brain-case, and consequently the contained cephalic mass, is larger in the first-mentioned species than it is in the last. I have not the skull of an Ivory-billed Woodpecker at present for examination, but am inclined to believe that it will be found to resemble the skull we now have under consideration, and its chief points of difference with what we found in the skull of *C. pileatus* are seen to refer to the palatine bone. This

¹ The specimen belongs to the collections of the United States National Museum (No. 1464). It lacks the pterygoids and hyoidean arches, and I am inclined to believe that the vomer has also been lost. The collector, however, preserved the sclerotics of one eye, and it is remarkable to see how completely they are fused into one circle of bone.

element is most remarkably modified, for, in the first place, it is comparatively very narrow, being nearly of an equal width throughout, while its postero-external angle is completely rounded off. Then, again, the palatine spur starts from the palatine proper (at the usual site), first as a delicate, half-turned whorl of bone, which is extended *directly* forward as a *fine* osseous thread fully two centimetres long. The anterior end of this latter coössifies with the mesial margin of the prepalatine, satisfying me of the fact that it is nothing more than a semi-detached part of the palatine, it being ossified with it at both extremities.

Plenty of skeletons of the several species of the genus *Sphyrapicus* are to be found in my private cabinets, and when we come to study the skull and associated parts of one of these peculiar Woodpeckers we are met by a number of characters not seen in the picine skulls already considered above. Viewed upon superior aspect, the cranium of *S. thyroideus* is broad, rounded and smooth, calling to mind these parts as they appear in any small, ordinary passerine bird. The denting caused by the capital feather quills is only seen faintly in the fore part of the frontal region, which in these birds is very broad between the orbits. This breadth is extended to the base of the premaxillary, and this broad base runs quite abruptly to the apex of the upper mandible. This part of the skull is also much compressed vertically, causing the external narial apertures to appear quite slit-like. To some degree the frontals bulge over the premaxillary about as much in comparison as they do in the Imperial Woodpecker. Seen laterally, this skull presents us with a large pars plana, but apparently no os uncinatum. Internally the pars plana curves well backward, while on the other hand the anterior wall of the brain-case curves correspondingly forward. This all very much reduces the size and extent of the interorbital septum proper, which is here unpierced by any fenestra. The morphology of the turbinals is practically the same as in other *Pici* already considered, and a large free turbinal exists in the species of this genus. Either jugal-bar is short, straight and slender, articulating in the usual picine fashion with its quadrate behind. And this last-named element is strictly upon the Woodpecker model, while in the case of the pterygoid, its "snag" for muscular attachment is very long, and the palatine heads of these bones do not meet when articulated *in situ*. Further, the mesopterygoid does not reach as far forward as the palatine spur of the palatine of the corresponding side.

With respect to the palatines, they are interesting from the fact that the palatine spurs curve toward each other and the median line; but more than this, for when either of them passes the interpalatine spine of its own side it presents a shoulder for the apex of the latter to fit upon, while after this the palatine spur is continued forward as a delicate osseous spine for a short distance. There appears to be no vomer present in *Sphyrapicus*, and the maxillo-palatine are more than ordinarily reduced in size, while the great comparative breadth of this part of the skull takes them away still further from the prepalatine on either side.

As is well known, the hyoidean arches in this genus of Woodpeckers, although morphologically like others of the suborder, they nevertheless exhibit the notable feature in not having the thyro-hyals curve back over the cranium any more than they are seen to do in ordinary passerine birds.

The mandible is as in other *Pici*, with its symphysis rather deep and the posterior angular processes slightly more conspicuous. The ramal vacuity is entirely absent.

Quite a gap must exist between *Colaptes mexicanus* and such a form as *Picoides arcticus*—that is, if we be guided by what their skulls seem to indicate. In *Picoides* we meet with a skull that is possessed of a relatively very large cranial casket, globular and every way elegant in the extreme. It is uniformly and handsomely dented all over by the quill-butts of the capital feathers and is distinctly grooved for the thyro-hyals of the hyoid as far forward as the cranio-facial hinge. The frontals and nasals conspicuously roll over the premaxillary base, but the line here is not directly transverse, as it makes an obtuse angle, with its aperture looking forward.

The superior osseous mandible is very wide at the base, straight, vertically much compressed, causing the slit-like external narial apertures. These latter have their superior margins slightly tilted upward, as though the flattening of this mandible was becoming too great, and the nostril had made an effort later to enlarge its aperture.¹

¹ Some meaning, too, must be attached to the peculiar way the frontal region bulges over the base of the premaxillary; possibly the continual hammering these birds indulge in to obtain their food may have in time produced this condition. At any rate it has the appearance as though the premaxillary had been pushed into the fore part of the skull. I have noticed, too, that it is in the skulls of the most inveterate hammerers that this feature is best developed. It is scarcely noticed at all in *Colaptes*, indeed it is quite absent there.

Parker often speaks of having found a lacrymal in the Woodpeckers, and here in *Picoides* one certainly seems to exist, and it is represented by quite a sizable flake of bone semi-attached to the posterior margin of either nasal. It may explain the little bit of a nib of a process found at the same point upon the nasals of some other *Pici*—*Ceophleus*, for example. *Picoides* has an orbit that is veritably cup-shaped, which reduces the interorbital septum to almost *nil*, and proportionately the partition here between the orbits is quite as thick as it exists in certain caprimulgine types. Notwithstanding this a sizable fenestra pierces the septum in question. Os uncinatum, if present, is extremely rudimentary in character, while a foramen pierces the pars plana just within its external margin about midway up the plate. Other *Pici* show the same character.

Directing our attention next to the base of this skull, we are at first struck with the remarkably small size of the pterygoids, and this is enhanced by the relatively great proportions of the dome-like cranium that overshadows them. Each one develops a conspicuous "muscle-process," and the mesopterygoid is interesting from the fact that it is more paddle-shaped than in any other Woodpecker I have thus far examined. They do not reach forward to the hinder ends of the palatine spurs of the palatines, but hold a position more as we find it among the *Passeres*. The basipterygoid processes are entirely absent. A nasal septum ossifies anteriorly and is represented by a mesial thread of bone and small, semi-detached plates. I fail to find a vomer present in this species, but it may be very rudimentary; at any rate there is not much room for it at its usual site under the rostrum, for here the palatine on either side curls closely up upon the nether surface of that bar, and in a way I have not observed in other Woodpeckers. Perhaps the small vomer was lost during maceration; and at the present time I have but one skeleton of *Picoides arcticus*.

The posterior moiety of either palatine bone is but slightly wider than its prepalatine portion. For its whole length it is flattened, and the postero-external angle is inclined toward producing a process, which is directed bluntly backward and outward. A palatine spur is represented by a scraggly thread of bone, which on the right side passes forward above the interpalatine spine, to become attached again to the mesial margin of the palatine farther along. On the left side this connection is not made, so we have the usual

palatine spur, and further along on the edge of the palatine, anterior to the interpalatine spine, we find a thread-like retral process, which condition is similar to what Parker saw in *Gecinus viridis* and other picine types on *both* sides.

Maxillo-palatine lobes are very small, and upon either side they are even markedly well separated from the corresponding palatine.

In *Picoides* the ends of the thyro-hyals of the hyoidean apparatus seem to extend no farther forward than a point opposite the cranio-facial hinge; while, with respect to its mandible, it only need be said that in it the symphysis is deep, and the posterior angular processes especially well produced for a Woodpecker. There is no ramal fenestra present.

Macgillivray, in speaking of the arrangement of the hyoidean extension over the skull in United States *Pici*, in Audubon's *Birds of America* (Vol. iv, pp. 288-289), says:

"In *Picus varius* the tips of the horns of the hyoid bone reach only to the upper edge of the cerebellum, or the middle of the occipital region.

"In *Picus pubescens* they do not proceed farther forward than opposite to the centre of the eye.

"In *Picus principalis* they reach to a little before the anterior edge of the orbit, or the distance of half an inch from the right nostril.

"In *Picus pileatus* they extend to half way between the anterior edge of the orbit and the nostril.

"In *Picus erythrocephalus* they reach to three-twelfths of an inch from the base of the bill.

"In *Picus tridactylus* they reach the base of the ridge of the upper mandible.

"In *Picus auratus* they attain the base of the right nasal membrane.

"In *Picus canadensis* they curve round the right orbit to opposite the middle of the eye beneath.

"Lastly, in *Picus villosus* they receive the maximum of their development and curve round the right orbit, so as to reach the level of the posterior angle of the eye."

This agrees very well indeed with the present writer's observations, but Macgillivray did not seem to take into consideration the fact that the ends of the hyoid exhibit *two* inclinations—one as in

Colaptes, where they essay to enter the right nostril, and the other as in *Dryobates*, where they essay to curve round the right orbit.

Now, in *Xenopicus albolarvatus* they reach far forward and exhibit an evident tendency to curve round the right orbit and succeed in coming down pretty well in front of it.

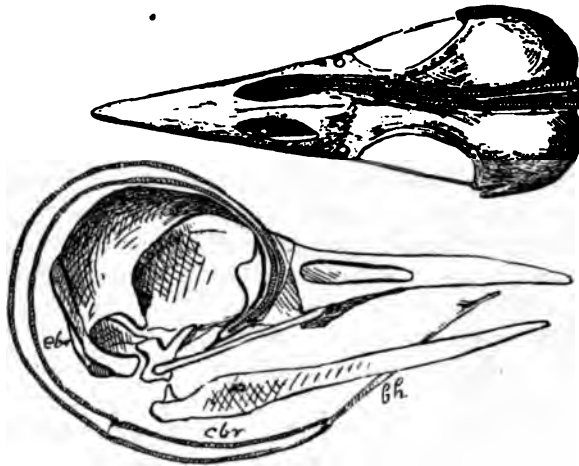


FIG. 6. (Upper one.) Superior view of the skull of *Colaptes auratus*, life size, showing the manner in which the thyro-hyals of the hyoid pass to the right nostril.

FIG. 7. (Lower one.) Right lateral view of a skull of a *Picus*, designed to show the second method by means of which the extremities of the hyoid are stowed away around the right orbit. *bh.*, basihyal; *cbr.*, cerato-branchial; *eb.*, epibranchial. (Taken from Coues's *Key*, and both figures drawn by the present writer.)

Consequently, in *Xenopicus* we find the usual groove on the top of the cranium for the ends of the thyro-hyals and the rounded vault of the parietal and frontal regions. These are well dented by the quill ends of the capital feathers. This species of Woodpecker has a skull most nearly approaching that part of the skeleton in some forms of *Dryobates*, and reminds one but very little of any of the skulls in either *Spyrapicus* or *Melanerpes*.

In form the superior osseous mandible in *Xenopicus* is typically picine, being quite unlike what we find in such types as *Colaptes* and *Melanerpes torquatus*. At the base of the skull it is interesting to note that in this comparatively rare species there appears to

be a complete abortion of the basipterygoid processes, and there is certainly no vomer. On the pterygoids the muscle-process is but fairly well developed. On the palatines the interpalatine process is inconspicuously pronounced, while either "palatine spur" is delicate and passes forward to fuse with the mesial margin of the palatine from which it arises. A moderately large os uncinatum is seen and a small subcentral fenestra pierces the interorbital septum. Contrary to what we have found usually to obtain, a ramal vacuity of some size pierces the ramus of either side of the mandible.

When we come to compare the trunk and appendicular skeleton of *Xenopicus* with the corresponding parts of the skeleton of, say, such a species as *Dryobates villosus*, we will find still other points of resemblance between them. Just here, however, we pass to the consideration of the skull in the last-named species, which is the form I have selected to represent the genus to which it belongs. At the present writing I have beautiful skeletons of *D. villosus* before me, which I prepared from specimens collected for me by Dr. W. S. Strode, of Bernadotte, Ill.

Elegant in form and structure and eminently picine in character, the skull in *Dryobates* is truly a most interesting object to study. Externally the vault of the cranium is beautifully rounded and handsomely pitted by the quill ends of the capital feathers; further, a double gutter for the ends of the hyoidean apparatus is unusually distinct. The superior orbital rims are slightly tilted upward, and just within the margin of either one of them occur perforating foramina. Between these borders the frontal region is rather broad, while in front, between the nasals, it rolls or bulges well over the consolidated extremities of the premaxillaries. The superior osseous mandible is especially picine in character, being rather wide posteriorly, compressed vertically and directly drawn to an acute apex anteriorly. As already remarked, on its superior aspect it is *pushed into* the frontal boss behind. The culmen is represented by a raised ridge extending down the middle line to the apical extremity. Either external narial aperture is rather ample; the line of the lower margin of the opening being curved, while superiorly it is straight. Within the narial chamber the arrangement of the turbinals is as we have described them above from Parker. I would add, however, that the *free* turbinal upon either side is large and composed entirely of bone.

Upon lateral aspect we are to note that the "infraorbital bar" is very slender and straight; it is without a quadrato-jugal. Pars plana is ample and much curved and there is a fairly well-developed os uncinatum. The interorbital septum is a thickish plate, which shows a good-sized vacuity near its centre. Still more posteriorly it will be seen that the sphenotic and squamosal processes are both conspicuously developed, while anteriorly the nasal is very slender. By their approaching each other the long sphenotic process and the os uncinatum come within one-fifth of completing the orbital periphery, and the orbital cavity itself is deep, capacious and cup-shaped. Either tympanic bulla, although not strikingly large, has the usual cowrie-shell shape so characteristic of the skulls in the birds we have now under consideration.

I find no evidence of any basipterygoid processes, and the basitemporal region is broad and smooth. Mesially the pterygoids nearly meet each other, and either one of these bones supports a conspicuous muscle-process. As for the mesopterygoid portion of a pterygoid, it is rather broad and by no means reaches as far forward as the palatine spur of the palatine bone of its own side. A quadrate is as we find it in the *Pici* generally, but it is to be noted that the extremity of its orbital process is slightly expanded. Coming to a palatine, we are to observe that the post-palatine plate is slightly concaved upon its nether side, its postero-external angle is rounded off, and this entire division of a palatine bone is quite evidently separated from the prepalatine or more horizontal portion by a subconstriction just anterior to the spiculiform interpalatine spine. The palatine spur is strongly developed, and, as in *Xenopicus*, completely fuses anteriorly with the mesial edge of the palatine to which it belongs. This fusion of the anterior end of the palatine spur is at some distance in front of the interpalatine process, while opposite this last-named projection it often sends out a little osseous shoot that makes the feint to join with its apex—that is, with the apex of the interpalatine spine. A well-marked vomer is present, having the usual form and occupying the usual place, as is seen in the *Pici* generally, and which I have fully defined above. A thin or often thread-like septum narium also ossifies in this species of Woodpecker, and this extends backward for a variable distance in different individuals—in the example before me as far as the middle point midway between the very much aborted maxillo-palatines. These latter are really more reduced than in any Woodpecker with which I am acquainted.

Passing to the mandible of *Dryobates*, it is seen to have the common V-shaped pattern of the Pici generally, with its symphysis rather deep, with its posterior angular processes well-marked, and with quite a sizable ramal vacuity in either of its rather vertically deep rami.

As has already been stated above (in the table quoted from Macgillivray's synopsis in Audubon), the hyoidean apparatus in *Dryobates* (*Picus*), in so far as its skeletal parts are concerned, is typically picine, and when the ends of the thyro-hyals arrive as far as a point opposite the light nasal bone they curve, and thence on pass nearly round the outer rim of the right orbit. The ear-bones I have not especially examined in this species, but they probably very closely agree with what Mr. Parker found in other Woodpeckers, and on this point I have quoted him above. With respect to the sclerotals of the eye, I find them in *Dryobates* quite like what we have given above for the Pileated Woodpecker and other forms.

This is all I have to say in the present place about the skull and the osseous structures more or less nearly associated with it in the *Pici*, so that next we will pass to the consideration of the remainder of the skeleton in this group of birds. Our remarks upon the skull were led in by an examination of that structure in the genus *Colaptes*, so back to *Colaptes* we go for material upon which to base our remarks upon the trunk and appendicular skeleton.

ON THE SKELETON OF THE TRUNK AND LIMBS IN THE WOODPECKERS.

Upon examining the vertebræ of the vertebral column of a specimen of *Colaptes mexicanus* at about the time the bird quits the nest, we find that there are nineteen of these bones between the skull and pelvis, which is the same as we will hereafter find in all true passerine types.

These vertebræ in the young *Colaptes* ossify from the same number of centres, and after the same fashion as they ossify in all of the higher groups of birds. *Ten* more vertebræ seem to enter into the formation of the pelvic sacrum; and, excluding the pygostyle, *six* more free ones compose the skeleton of the tail. Later on we will allude more particularly to these segments of the entire spinal column, and the peculiarly formed one that terminates the chain behind. The pelvis at this age still faintly shows the sutural traces

that indicate the boundary lines among the three bones that enter into its composition upon either side of the sacrum. Even at this age it is already strongly indicated that its sides are to be deep, its basin capacious, and its preacetabular portion comparatively narrow (see Figs. 9 and 10).

A rudimentary riblet may be suspended upon either side of the twelfth cervical vertebra, and a better developed pair occur on the thirteenth, while on the fourteenth cervical the pair of ribs, although freely suspended, possess well-marked epipleural or unciform appendages.

These latter are very large on the fifteenth, sixteenth and seventeenth pairs of ribs, small on the eighteenth, and entirely absent on the nineteenth, as they also are on the pair of sacral pleurapophyses. The four pairs of true dorsal ribs articulate with the sternum through the intervention of sternal or costal ribs, and the anterior pair of these latter are very conspicuous from their unusual bigness—not so much so in this nestling, however, as they are in the full-grown *Colaptes*, and still more so in adult individuals of other species of our *Pici*. Regarding the hæmapophyses of the sternal ribs, or rather pair of ribs, we observe that they do not reach so far as the costal border of the sternum upon either side. At this age the sternum is but subdeveloped, showing but imperfectly the pair of notches on either side behind, while the carina is shallow and the manubrial process not complete.

With respect to the shoulder-girdle in this young Red-shafted Woodpecker, I find that the hypocleidium is absent from the os furcula, and that this bone has its upper ends pointed. In front of either of these points we observe a flat, triangular piece of bone of some considerable size that lies against the head of the coracoid and the anterior extremity of the scapula of the same side. This piece ultimately fuses with the end of the clavicle, and thus either end gets to wear the form of the bone as we find it in the adult *Colaptes*. Probably this method of formation is common to all of our species of Woodpeckers.

The distal ends of the scapulæ are slightly expanded and rounded, and as yet but faintly suggest the peculiar form they take on in fully matured individuals.

Nestlings very imperfectly show the pneumaticity that eventually comes to so generally obtain in the pectoral extremity of the old birds of this species and some other *Pici*—for representatives of

this group have this feature quite strongly marked in their skeletons. Further consideration of this limb shows the presence of a good-sized os humero-scapulare; it shows the papillæ along the shaft of the ulna for the ends of the quills of the secondary wing-feathers; it shows the presence of a rudimentary sesamoid at the elbow; and it shows, even at this early age, the ossicles at the wrist number but two free ones, all the others having duly fused with the proximal extremity of the metacarpus. Peculiarities of the bones composing the hand can best be studied in old birds, which we will do further on.

Upon examining the skeleton of the pelvic extremity in this nestling, I find ossification of the several bones composing it so far advanced that nothing would be gained by a description of them in their present state, and it will be better to study them also in a matured individual. Students will comprehend just how rapid this ossification has been when I tell them that even at this early stage of this Woodpecker's development the line of sutures between the condyles and the lower end of the shaft of tibio-tarsus has been absorbed, a condition which likewise obtains in the femur. A goodly patella has also ossified.

Taking up next the skeleton of an old individual of *Colaptes mexicanus*, we find some very good characters in its vertebral column, in addition to those described above. With respect to the atlas, it is peculiar in having the vertebrarterial canal, upon either side, *completely enclosed by bone*. It also has a very broad neural arch, and its cup for the condyle is unperforated in many specimens. In the axis we find both neural spine and hypopophysial process prominently developed, and in this vertebra the vertebrarterial canal is also present and of some length, being enclosed by bone. Both atlas and axis are highly pneumatic, as are all the free vertebræ of cervical and dorsal regions. This not only obtains in *Colaptes*, but in other *Pici*. Conspicuous neural spines are also seen upon the third and fourth vertebræ, with less evident hypopophysial ones. In both these last a broad interzygapophysial bar exists upon either side, and with regard to the remaining cervical vertebræ they are chiefly noted in not possessing parial parapophysial spines, those processes so characteristic of the mid-cervical vertebræ in the vast majority of the *Passeres*. Zygapophysial processes in these vertebræ are short and thick, which fact lends a peculiar

solid appearance to the mid-cervical segments from a posterior view. A hypopophysial canal is well marked, and this in the tenth, eleventh and twelfth vertebræ is replaced by very large and strong processes.

Among these segments the usual form of articulation that we find in the highest groups of birds prevails both anteriorly and posteriorly.

In the dorsal division of the spine large neural spines are present and the diapophyses are long and broad, developing at their outer extremities, above, short spine-like metapophyses.

Pneumaticity obtains in the case of the thoracic ribs, and these bones are rather wide in the antero-posterior direction and compressed transversely. The epipleural appendages are broad and not lengthy, usually in any case only reaching to the middle of the next succeeding rib. They always fuse with the margin of the latter.

Foramina for the admission of air are likewise to be seen at the ends of the true costal ribs.

Very spreading and somewhat downwardly-inclined transverse processes characterize the six free caudal vertebræ in *Colaptes*. Their centra are small and the bones are not pneumatic. The neural canal is almost capillary in its calibre, while in the two ultimate segments a coössified, strong chevron bone is seen, which is likewise pierced antero-posteriorly in the last one by a foramen. This foramen is also carried on through the lower part of the peculiarly formed pygostyle. The neural spine of the last-mentioned is lofty, being thin-edged in front and on top, while posteriorly it is thicker. This bone also coössifies with the caudal vertebra next in front of it, the transverse processes of which remain undiminished in size. Behind, the pygostyle at its lower part flares out as a broad, transversely-disposed hexagonal plate of bone, constituting a well-known character of the *Pici*.

So far as number of vertebræ is concerned and arrangement and number of ribs, *Dryobates* essentially agrees with *Colaptes*, but in the former we find some interesting morphological differences. In *Dryobates* the cup of the atlas is always perforated, and at the sides of this bone, either upon one side or the other, the osseous span for the vertebrarterial canal may not be quite complete, while on the other hand the hypapophysial canal for the carotid artery is entirely surrounded by bone, and the union below is firm. The last five cervicals support long hypopophyses which are narrower

in mid-series than they are at the ends; the leading dorsal vertebra also bears one of these processes, while the neural spines to the last-mentioned are lofty and comparatively narrow antero-posteriorly, and a somewhat reduced one is found on the last cervical. Epipleural appendages are seen upon all the true dorsal ribs, but they are absent from the extremely slender pair of sacral ribs. The last pair of cervical ribs are peculiar in being very stout and broad, and from this pair backward through the dorsal series they diminish in width. Most curious of all is the great size of the anterior pair of sternal ribs, and it is not clear to me at the present writing why they should be so. There is no canal passing through the ultimate chevron bones and the lower part of the pygostyle in the skeleton of the tail in *Dryobates*. Excepting a few minor departures, the part of the skeleton we have now under consideration in the Ivory-billed Woodpecker essentially corresponds with what we see in the last-mentioned genus. *Campephilus*, however, does not have its carotid canal completely closed in—the canal is found through the chevron bones of the caudal vertebræ—and a very high state of pneumaticity exists throughout. *Xenopicus* likewise agrees, as does the Pileated Woodpecker (*C. pileatus*), and in it the chevron bones are pierced by a canal which is extended through the enormous pygostyle of this bird. It, too, has the vertebrarterial canals of the atlas and axis entire.

Picoides arcticus presents us with nothing in its vertebral column and ribs in any way at variance with what we have in general found among other Woodpeckers above. In it, as usual, the atlas is pierced on either side for the vertebrarterial canal, and the carotid canal is slightly open in mid-cervical series, but completely closed and very small in the last vertebra or two. Nineteen free vertebræ are found between skull and pelvis, and six with a large picine pygostyle in the skeleton of the tail.

In a specimen of *Melanerpes erythrocephalus* at my hand I also find nineteen free vertebræ from occiput to pelvis, with six free tail vertebræ and a pygostyle. Generally speaking, the characters of these and the ribs connected with them are much the same as we have already described above for representatives of other American picine genera, but still there exists a specific shading difference hard to define. The vertebrarterial canal or foramen is closed in by bone on one side, open on the other in the case of the atlas, and the cup of this bone is largely perforated by an odontoidal fenestra. The

ribs appear to be slenderer and the hyapophysial processes of the last cervical vertebra not so strongly produced. A foramen, median in position, perforates the lower part of the pygostyle, as I have called attention to in some other Woodpeckers.

The first pair of sternal ribs are comparatively not so stout as they are seen to be in *Dryobates*.

Coming next to consider such a form as *Melanerpes torquatus*, we find the same plan prevailing; in it, however, the pre- and post-zygapophyses of the mid-cervical region are rather more spreading; the upper parts or moieties of the dorsal ribs are again broad; the leading pair of hæmapophyses are barely larger than the remaining pairs. This is quite a striking difference as compared with what we saw, for instance, in *Campephilus*. With respect to the caudal vertebræ, we find their transverse processes narrow and long, while the chevron bones, coössified with their centra beneath, are simply bifid, and the spreading part of the pygostyle, comparatively speaking, is not as large as usual. Finally, the neural spines of the dorsal series of vertebræ are very low, and the ends of their superior borders interlock both in front and behind.

Some very noted differences are to be seen in this part of the trunk skeleton when we come to compare *M. torquatus* and *M. carolinus*. First, in the last-mentioned species the post- and pre-zygapophyses of the mid-cervical vertebræ are not nearly so slender nor divergent; it has but five free caudal vertebræ,¹ and a large submarginal foramen pierces the pygostyle below.

There are also other minor differences which are to be recognized upon careful comparison. Right here I wish to point out a difference that exists in the axis vertebra of the Pileated Woodpecker and the same bone in *Dryobates*, *M. torquatus* and *M. carolinus*. In the first this segment of the spine is pierced upon either side by the vertebrarterial canal, while in the last-mentioned species the vertebral artery and vein skip this vertebra and pass directly from the canal in the third cervical to the corresponding canal in the atlas.

Melanerpes uropygialis exhibits some characters in its vertebræ and ribs that agree with the corresponding ones in *M. torquatus*, while others agree with *M. carolinus*. For instance, it has six free caudal vertebræ and the pygostyle, the latter showing the

¹ Determined from two specimens sent me by Dr. Strode.

medio-submarginal foramen. One peculiar character is seen in this handsome Woodpecker, and it is in the first or anterior pair of its dorsal ribs. Here the epipleural appendages, the one on either side, fuse with the margin of the rib for the entire length of its superior border. In other words, the epipleural appendage is parallel with its rib, its upper margin being coössified with the posterior or adjacent border of the rib to which it belongs.

None of the species of the genus *Sphyrapicus* seem to present us with any very marked departures from what I have attempted to give above in reference to their spinal column and ribs. They have *six* free caudal vertebræ, the *fenestra* exists in the pygostyle, the atlas is perforated for the passage of the vertebral vessels on either side, and the ribs seem to be slenderer than is usual among Woodpeckers.

In this genus, in *M. carolinus* and no doubt in some others, the lower ends of the last pair, or "floating costal ribs," coössify with the hinder margin of the costal rib in front of them. This is not the case in *Dryobates*, *Picoides*, nor in some others; it may occasionally be seen in the Pileated Woodpecker.

Let us next consider the sternum in some of the *Pici*. Several characters of this bone are held in common by all the representatives of the group. It is always found to be highly pneumatic, with the foramina between the facets on the costal borders; secondly, on the thoracic aspect (1) down the median line, (2) transversely within the anterior border, and (3) a large median one at the base of the manubrium. The carina is comparatively shallow, and notably extended forward beyond the body of the bone. Either costal process is lofty, pointed, with all the facets for the costal ribs arrayed down its posterior border. In front, a more or less bifurcated manubrium is seen. Behind, the body of the bone is expanded, and profoundly two-notched upon either side, thus giving the xiphoidal processes dilated posterior ends.¹

The costal grooves are prominent, separated mesially, and a small subcircular facet is found at the termination of either one of them externally. They are for articulation with the coracoids.

¹ In the sternum of a specimen of *Colaptes mexicanus* at my hand the inner notch of the left pair is a large subelliptical foramen, caused by the fusion of the inner tip of the process with the outer tip of the adjacent angle of the body of the bone.

In *Colaptes* the manubrium is strongly bifid, pneumatic foramina occur at all the points mentioned above, the notches of the hinder part of the body are profound, and the anterior border of the carina is convexed forward. In *Campephilus* the manubrium is small and feebly bifid, and there is no median pneumatic foramen posterior to its base; the articular borders of the costal processes are very broad transversely; the body of the bone is much expanded posteriorly, though the "notching" is comparatively shallow; the anterior carinal border is irregularly scalloped.

In the Pileated Woodpecker we find a sternum closely resembling the bone in *Campephilus*; in it, however, the notches are comparatively deeper, the bifurcation of the manubrium more evident, and the carina comparatively deeper. This notching of the xiphoidal margin of the sternum though is found to vary with respect to its profundity in different individuals of the two last-mentioned genera.

Dryobates has a typically picine sternum, with a bifid manubrium, and the anterior border of the carina nearly straight and vertical—a condition that is likewise present in the bone in *Xenopicus*.

Picoides arcticus exhibits nearly the same characters with the last two, but in it we find a sternum that calls to mind the bone as it occurs in some of the *Passeres*. The carina is deeper and not so prominently brought forward in front. Four notches behind, however, dispel the resemblance.

Changing pattern again in *Melanerpes torquatus*, we find a sternum with a shallow keel, with a conspicuously produced fore part; a subaborted bifid manubrium; a shortish body, with thin costal processes; and, finally, the bone less pneumatic than is the rule among Woodpeckers. Some of these features are carried still farther in *M. carolinus*, where pneumaticity of the bone is at its minimum, and the bifurcations of the minute manubrium are almost or quite aborted. In this species, however, the xiphoidal processes are slender, and the notches that create them more than usually deep. All this agrees very well with what we find in *M. uropygialis*, but in the sternum of this bird the carina again is very shallow and the "notches" not strikingly deep—at least not nearly as much so as they are in *M. carolinus*.

Other species of this genus show some slight individual peculiarities in their sterna that, taken in connection with other characters, ought to some day assist in determining affinities.

In *Sphyrapicus* the xiphoidal processes are uncommonly slender; the body of the bone thin and delicate;¹ while the horns of the manubrium are a little larger again.

All of our species of Woodpeckers possess an os humero-scapulare at either shoulder-joint. It has much the same form and relative size as we find it in birds of comparative proportions among the Passeres. With respect to the several bones of the shoulder-girdle, however, they are seen to have quite dissimilar patterns among the *Pici*, although the general plan or form is the same. Most curious do we find a scapula to be in *Colaptes*. It is fashioned like a flattened great J, with the curved portion enlarged and directed outward. Either coracoid has a long, slender shaft, with the head of the bone much produced upward, and compressed from side to side. At its sternal extremity we find a sharp, thin, hook-like process at its outer aspect, with two concave, transverse facets below, and a small subcircular one at its suprainerno-mesial angle. As we know, these facets are for articulation with the sternum. The glenoid facet at the other end of the bone is long and narrow, and is inclined to be convex outward rather than a "cavity," as it really is on the scapula. Os furcula is of the typical U-shaped pattern, with enlarged, triangular, transversely compressed heads, and no hypocleidium below. The clavicular limbs are delicately constructed, and likewise compressed in the transverse direction. All the bones, with perhaps the exception of the furculum, of this arch are highly pneumatic, and when articulated *in situ* the great, flattened, subtriangular head of the furculum on either side is lain flat against the scapula and coracoid, which in turn are articulated in the usual manner.

Adult Ivory-billed Woodpeckers possess a strong pectoral arch, and in this species all of the bones composing it are thoroughly pneumatic. Relatively they are considerably shorter than the corresponding bones in a *Colaptes*, with their extremities somewhat stouter. The scapula does not especially remind us of a J, although its posterior end is abruptly turned outward, but it is about at right angles with the shaft and not enlarged or curved any. Proportionately speaking, the coracoidal end of a scapula in this

¹ I have one specimen that shows a normal circular fenestra in it on the right side, just anterior to the inner notch, and probably this character will be found in a certain percentage of the sterna of this species, *S. v. nuchalis*, as well as others of the genus.

species is tuberos and the pneumatic foramina upon its anterior face large. A coracoid lends but a limited share of the articular surface for the head of the humerus, but a large, subtriangular facet is seen upon the scapula for that purpose.

In *Melanerpes torquatus* the same general characters as we have described obtain, but, as we would naturally expect, the several elements of the arch possess a peculiar facies of their own. A blade of a scapula, for instance, is vertically compressed, while its enlarged posterior end is not nearly so abruptly turned outward as it is in *Colaptes*. At the lower outer angle of the sternal end of a coracoid, the process is handsomely developed and the facets below very distinctly defined. This last description agrees pretty well, too, with what we find in *M. carolinus*, though good differences exist in minor details. *Dryobates villosus* has the posterior end of either scapula bent out at a right angle with the shaft, which is also the case in *Xenopicus*, while in *Ceophlaeus* all the bones of the arch are fashioned more as we find them in *Campephilus*.

Various species of *Sphyrapicus* show all the picine characters of the bones of the shoulder-girdle, and in them the hinder ends of the scapulæ are enlarged and stand at a right angle, in either case, with the shaft.

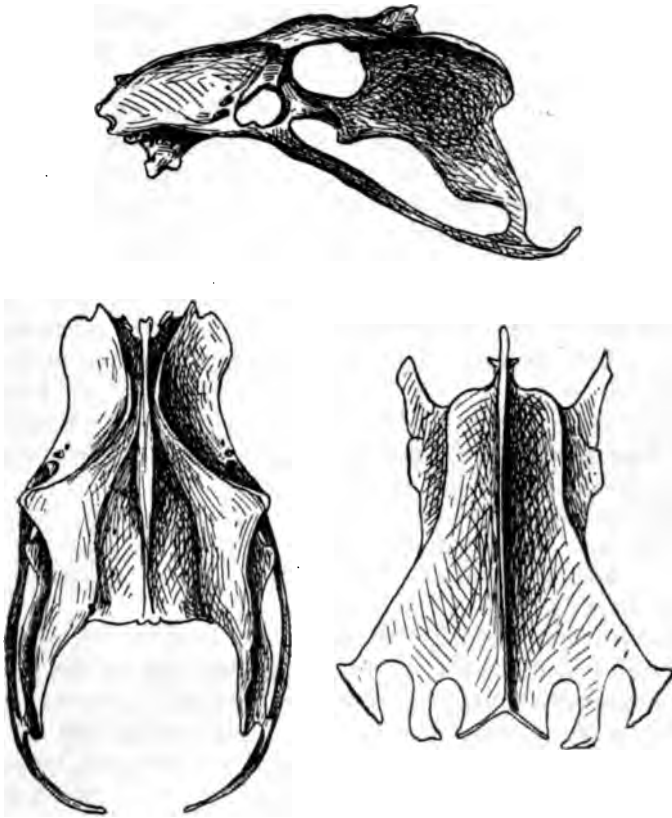
Very conspicuous indeed is the process at the outer aspect of the sternal end of a coracoid, it being sharp-pointed and somewhat turned backward.

In some Woodpeckers, as the Ivory-bill, this last character would hardly attract especial attention. It is but moderately marked in *Picoides*, a bird which also has a typical picine pectoral arch.

Any American Woodpecker is always possessed of a large, capacious pelvis, and in *Colaptes*, when we come to view the bone from above, it is seen to have a moderately extensive pre-acetabular region, with a much larger post-acetabular one. An ilium is pointed in front, and these bones diverge from each other as they proceed forward. This creates a canal of increasing size on either side of the prominent crista. Posteriorly the "sacrum" fuses completely with the ilia and presents behind more or fewer small parial, interdiapophysial foramina.

At the side, the antitrochanter is small, though prominent; the ischiadic foramen of good size; a large obturator space merging with the small subcircular obturator foramen; a circular acetabulum with its base entirely absorbed. There is no propubis, and

the postpubic bone is long and slender, being produced well beyond the ilia on either side behind. Sometimes it fuses with the foot-like process sent down by the ischium. Superiorly the hinder margin of the ischium is roundly concaved, the lower part being convexed outward. Upon the aspect now under consideration we see that the pelvis is rather deep. This feature is very characteristic of such a form as the Ivory-billed Woodpecker (see Fig. 8).



STERNUM AND PELVIS OF IVORY-BILLED WOODPECKER.
(*Campephilus principalis*.)

FIG. 8. (Upper one.) Left lateral view of the pelvis.

FIG. 9. (Left-hand one.) Superior view of the same bone.

FIG. 10. (Right-hand one.) Anterior aspect of sternum.

All figures life size from nature by the author from specimen No. 18578 of the collections in the United States National Museum.

The calibre of the neural canal is subcircular and not large, and swells but little for the enlargement of the myelon where the sacral plexus is given off. One thing strikes us as peculiar in this pelvis, and that is upon its ventral aspect there is no lengthening nor any other change in the transverse processes of the vertebræ opposite the acetabulæ. It is well known that in a great many birds these are increased in size and strength and thrown out as buttresses against the ilia as a means of support for these points, they being opposite the articulation of either femur. Anteriorly there are three vertebræ that throw out their diapophyses against the ilium on either hand.

In *Dryobates* the general character of the pelvis is the same, presenting but few specific differences. Viewed from above there is seen to be a flush, smooth and level area mesially situated between the points where the "ilio-sacral canals" terminate behind and a pair of triangular depressions over the sacrum posteriorly for the lodgment of caudal muscles. This is also fairly well marked in *Colaptes*. In *Xenopicus* the pelvis is very much like that bone in *Dryobates*, while in *Picoides arcticus* it has a pattern peculiarly its own. Here the pelvis is short antero-posteriorly, with very deep sides, and post-pubic elements scarcely produced at all behind. Moreover, in *Picoides* the obturator space is shut off by bone from the large subcircular obturator foramen, and the downward projecting process of either ischium behind is exceedingly small.

The pelvis of *Melanerpes torquatus* reminds me very much of the pelvis in *Colaptes*, it having the same general character and form. The same remark applies, though not so strictly, to the bone as we find it in *M. carolinus*.

In the Ivory-billed and Pileated Woodpeckers the pelvis much resemble each other, but in the first-mentioned species the side of the bone posterior to the acetabulum is comparatively much deeper, while in the Pileated Woodpecker the descending foot of the ischium is relatively much broader and always fuses with the superior edge of the post-pubis where it meets it. In both these species the pelvis is largely pneumatic, a condition that obtains to a greater or less degree for this bone in all of our *Pici*; least so, perhaps, in such a type as *Sphyrapicus*. *Sphyrapicus v. nuchalis* has a pelvis quite picine in all its characters. Some good distinctive features present themselves when we come to compare such a pelvis with the pelvis of *Tyrannus tyrannus*.

In the Tyrant Flycatcher to which I allude (1) the parial foramina of the post-acetabular region are present and large. They are absent in the Woodpecker. (2) In *Tyrannus* the descending process of the ischium is slender and nearly straight; its foot does not coössify with the post-pubis. (3) The Tyrant Flycatcher has the obturate space and foramen separated by a delicate bridge of bone. They merge into one fenestra in the Woodpecker. (4) *Tyrannus*, on the ventral aspect of the basin of the pelvis, opposite the acetabulæ, has the transverse pleur- and diapophyses thrown out as abutments against the ilium, upon either side, as tie-beams. No modification of the parts mentioned is to be seen in *Sphyrapicus*. (5) *Tyrannus* has its ilio-neural canals open behind upon either side of the sacral crista. They are closed at those points in the Woodpecker.

Before passing to the consideration of the appendicular skeleton it will be as well to add here that I have glanced at the ossifications that occur in the *trachea* of *Colaptes*, and it will be seen that both the rings and the semirings are thoroughly ossified. At the upper extremity we find the usual bony thyroid plate, also arytenoid bones of a peculiar form. Each one develops two bifurcating limbs behind, which gently curve toward each other, and thus enclose or nearly enclose a subelliptical fenestra. Their free ends articulate with the corresponding side of the median bone at its upper tip. At the syringeal end of the trachea we find an ossified pessulus, with the ossified semirings below it. The form of the tracheal rings seems to correspond with the corresponding structures as we find them in most all ordinary birds.

OF THE APPENDICULAR SKELETON IN THE NORTH AMERICAN PICI.

So far as the pectoral limb is concerned, I may say I have examined it and compared it in some nineteen or twenty species of our Woodpeckers, and find that although there are some few distinctive characters, these appear for the most part to be slight, and in such a work as the present one need hardly be dwelt upon in detail. Pneumaticity, however, seems to differ among them in so far as its extent goes, for in *Colaptes* I find humerus, radius and ulna all pneumatic, while in *Melanerpes torquatus* only the first-mentioned bone enjoys that condition.

Ceophlæus pileatus offers us a very good average species wherein to study the characters presented on the part of this limb, and it

will be made to stand here for the group in this matter. An adult specimen of this form has a humerus measuring 5.4 cms. in length, an ulna of 6.5 cms., radius of 5.8 cms., and a total length of the skeleton of manus 5.1 cms.—a very well-proportioned limb.

Owing to its large pneumatic cavity, the humerus is very light, while, on the other hand, its shaft is large round. It exhibits the usual sigmoid curve, and the extremities of the bone are considerably expanded. The radial crest is long and rather prominent, and the ulnar tuberosity well over-arches the pneumatic fossa. At the base of the fossa the air-holes are very fine, and form a diffuse group of apertures leading into the humeral shaft. Between the ulnar tuberosity and the head of the bone a deep, oblique groove exists.

At the distal extremity the radial and oblique tubercles occupy their most usual positions, there being quite a prominent tuberosity on the radial border of the shaft immediately above the latter, and a still more conspicuous process produced distally below the former from the ulnar border of the bone.

The radius is nearly straight and slender; its shaft is quite uniform in calibre throughout. Its extremities exhibit the usual ornithic characters.

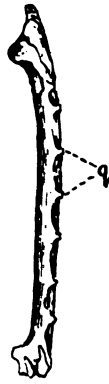


FIG. 11. Left ulna of *Colaptes mexicanus*, natural size, drawn by the author from a specimen in his own collection. *q* directs attention to the elevated osseous papillæ on the shaft for the insertion of the ends of the quills of the secondary feathers.

Nothing especial characterizes the ulna of the Pileated Woodpecker beyond the remarkable row of elevated papillæ down the

subpalmar aspect of its shaft. There are seven of these, and appear upon this bone in all of our *Pici*. Beyond this the ulna is seen to be a stout bone with subcylindrical shaft, the latter being nearly straight for its distal moiety—curved along its proximal half.

The olecranon process is well produced and all the articular facets and trochleæ of this bone are of good size.

A single sesamoid of no great size is found at the elbow, and in the adult Woodpecker the carpus is composed of the usual two free bonelets, the ulnare and the radiale. These latter possess each the form they are seen to have in most all ordinary birds, and their articulations also correspond.

The carpo-metacarpal bone of the hand has a few characters that should be noticed. Among these we observe that the articulatory facet or trochlea formed by the os magnum is, upon the anconal side, brought well down upon the shaft. Its border is rather thin-edged, and on the whole this part is compressed from side to side. Below the head of the bone there is seen a thin, laminated process coming off from the posterior aspect of the index metacarpal that laps flat over against the upper third of the shaft of the mid- or smaller metacarpal at its outer aspect. Such a process we will also find in this bone among the *Gallinæ*, *Passeres* and other groups.

The lower end of the midmetacarpal extends considerably below that end of the larger or index metacarpal, a state of affairs that is reversed in some birds, as in the *Trochili*.

Both pollex and distal index phalanges are comparatively small and pointed. They are without claws. The large proximal phalanx of the index digit is peculiar in that its posterior blade-like part is much reduced, and it is only distally that this part is produced a little, curves upward and meets the lower extremity of the small free phalanx of the middle or last finger. This last-mentioned phalanx is, contrary to the rule in ordinary birds, larger than either the pollex digit or the distal one of index, and is distinguished by having a tubercle projecting from the posterior aspect of the proximal third of its shaft.

Passing now to the consideration of the pelvic limb of the Pileated Woodpecker, the species in hand, we find that in the adult the femur measures 4 cms. in length, the tibio tarsus 5.4 cms., the tarso-metatarsus 3.7 cms., and the longest or outer

anterior toe 3.6 cms. The fibula rarely exceeds 3 cms. in length.

Besides the rather small patella, there are found one or more minute sesamoids in the tendons of the muscles that attach to the lower end of the femur, especially in that tendon which inserts itself between the femoral condyles (flexor longus hallucis). In it one appears to be constant.

Always pneumatic, the femur is characterized by a large air-hole situated at the usual site, when it occurs in this bone in *Aves*. A very shallow excavation for the ligamentum teres is found upon the femoral head, and the trochanter is not elevated above the articular surface at the summit of the shaft. This latter is nearly straight, subcylindrical on midsection, and is scarred by the usual muscular lines. As to the condyles, they are not large, and they offer us only the usual ornithic characters; the external one, being the lower, is grooved behind for the head of the fibula and has a small pit-like depression immediately above it. The popliteal fossa is shallow, as is also the rotular channel in front.

Tibio-tarsus possesses a large head, which is compressed antero-posteriorly, spread transversely, and is further characterized by having the cnemial crest well raised above the summit of the bone, while both pro- and ectocnemial processes are quite aborted or very nearly so. From end to end the shaft is slightly bowed outward or toward the fibula side. A line down its front is, however, practically straight. What appears to represent the "procnemial ridge" is here a thin crest passing down the upper half of the shaft upon its inner aspect. Directly upon the opposite side of the bone is seen the "fibular ridge," which is low proximally, and gradually increases in height to its termination below. This form of the ridge has the effect of keeping the distal end of the somewhat feeble fibula well away from the tibio-tarsal shaft. And it is about opposite the midpoint of this latter that we see the free pointed end of the fibula as it is held in that position.

Returning to the tibio-tarsus, we have still to observe that the usual osseous bridgelet crosses the tendinal canal at the antero-distal aspect, and that a tubercle is found above it upon either side, the outer one being the lower upon the shaft. The condyles are large, nearly of equal size, directly opposite each other

and separated in front, below and behind by a deep intercondylar notch. A pit is seen in the middle of this, below, for a conspicuous process standing up on the summit of the tarso-metatarsus.

Antero-posteriorly the articular facet on the summit of the fibula is concave. Just now I invited attention to the erect process standing between the concave articular facets upon the summit of the tarso-metatarsus in the Pileated and other Woodpeckers. This bone of the leg shows further that its hypotarsus is bulky, being both deeply grooved and perforated for the passage of the tendons. Its shaft is straight, rather small comparatively, and only slightly grooved down its length in front and not so at all behind. Distally the trochleæ are large and prominent, and among our *Pici* we find two patterns of these, one being as they occur in *Ceophlaeus*, now in hand, and the other as they occur in the three-toed forms, such as *Picoides*. They differ, however, but very little, as the difference in *Picoides* is a suppression of the first toe and the small, free first metatarsal. Evidently this does not affect the form of the trochleæ of the tarso-metatarsus to any extent.

Turning to the Pileated Woodpecker again, we find a very interesting state of affairs, for the trochlea for the inside anterior toe is single and much compressed lateralwise; the one for the outer anterior toe is double, or, in other words, has two condyles with the median valley running round between them. Then comes the single trochlea again for the fourth toe or the outside hinder one. It is turned to the rear and articulates with the basal joint of the reversed toe. Posterior to this is a very large, irregular, freely-projecting trochlea, which articulates with a sesamoid at the back of the foot. This sesamoid is moulded on to the inner side of the base of the basal joint of the reversed toe and to some slight extent on to the base of the basal joint of the hind toe proper. Indeed it stands between them, and the trochlea intended for it is fully three times as large as the one for the fourth or reversed toe.

The accessory metatarsal is comparatively very small and freely suspended as usual. Considerable feebleness seems to characterize the true hind toe of the Woodpecker under consideration. Its basal joint is much compressed from side to side, and indeed this is the case with all these joints of the podal digits, it being especially noticeable in the first and second toes. The osseous claw to the first toe is also comparatively small, but the outer

three ungual joints are powerfully developed. So far as the number of joints is concerned they range as in the *Passeres*, normally—*i. e.*, two, three, four and five for first, second, third and fourth digits respectively—the anterior toes having three (inner) and four (outer) joints devoted to them, while the posterior ones have two (inner) and five (outer), thus showing the reversed toe to be the fourth of the typical avian pes.

SUMMARY OF THE CHIEF OSTEOLOGICAL CHARACTERS OF THE NORTH AMERICAN PICI.

1. Large but simple-scrolled turbinals; there may be a free turbinal.
2. Bulging of the frontal region over the transverse cranio-facial line may (*Picoides*) or may not (*Colaptes*) exist.
3. Generally the external cranial vault is more or less dented by the ends of the quills of the capital feathers.
4. The interorbital septum is sometimes entire and sometimes shows a fenestra.
5. Pars plana large, and often the os uncinatum is well developed.
6. Lacrymal usually vestigial in character.
7. Quadrato-jugal aborted.
8. Tympanic bullæ cowrie-shell-shaped and otherwise peculiar.
9. A large spur on the upper side of either pterygoid for muscular attachment.
10. A median, dagger-shaped vomer sometimes present, but sometimes absent.
11. Maxillo-palatines rounded lamina and very much aborted.
12. A more or less imperfect nasal septum usually present.
13. Vestigial basiptyergoidal processes are distinctly developed in some species.
14. As ossification advances in the palatines it may be characterized as being "ragged" along the antero-mesial and antero-external margins of these bones. This often leaves little osseous islets not absorbed, a few of which may persist here and there throughout the life of the individual.
15. Either palatine is characterized by possessing an "inter-palatine spine," or process, and this may be continued forward to fuse with the mesial border of the bone by its free tip. Either palatine also possesses a palatine spur springing from the anterior point

of the internal lamina of the bone, and being directed forward. It may also in some species pass on to fuse with the mesial edge of the palatine to which it belongs by its free end. The postero-external angle of a palatine is either truncated or shows various degrees of being bluntly rounded.

16. The mesopterygoidal process of a pterygoid is not paddle-shaped, but long and narrowly pointed.

17. Distinct orbito-sphenoids exist in the nestling.

18. Mandible very strong, typically V-shaped in pattern; sides deep; symphysis varies in depth; ramal vacuity absent, or minute if present, and never large. Posterior angular processes more or less truncated; internal angular processes large. In some species the posterior third of the inferior ramal border somewhat tumefied and roughened.

19. Rudimentary cerato-hyals which early fuse together.

20. Uro-hyal absent.

21. Elongated thyro-hyal elements curl up over the cranium to a greater or less extent. They may pass round the right orbit. They may come to the posterior margin of the right external narial aperture. They may hardly come up on the cranium at all. Whenever they do the cranium is usually externally furrowed to receive them.

22. Sclerotal plates of the eye commonly fuse completely together around their external periphery and toward the centre.

23. "Double 'infrastapedial' and ossified stylohyal" (Parker).

24. Rings, semirings and other parts of the trochea ossify.

25. There are nineteen free vertebræ between the skull and pelvis; the vertebral arterial canals pierce the atlas and in some species the axis; the atlantal cup is perforate; there are no parial parapophyses; the carotid canal may or may not be entirely closed in by bone; where they are present the neural and hæmal spines are usually very large. There are three pairs of cervical ribs, five pairs of dorsal ribs and one pair of sacral ribs. The hæmapophyses of the latter do not reach the sternum. In some species the first pair of costal ribs are very robust, as are the last pair of cervical ones. There are five or usually six tail vertebræ (free), with an enormous pygostyle. Most of these parts are highly pneumatic.

26. The sternum is two-notched on either side of the carina; the manubrium is either slightly or very much bifurcated; the costal

processes are long and pointed, and the keel is usually rather shallow, projecting forward and carried up under the manubrial process. The sternum is usually quite completely pneumatic.

27. In the pelvis we find the ilia gradually diverging from the sacral crista as they pass forward. Parial interdiapophysial foramina are either very minute or entirely absent. Ischial notch on the posterior margin of the bone long, rounded and shallow. Acetabulæ large, and bases completely absorbed. Sides of pelvis usually very deep. Postpubic slender, extends beyond ischium, the foot of which latter may or may not fuse with it. Obturator space large, and may or may not merge with the obturator foramen. *Three* of the vertebræ of the sacrum anteriorly throw out their processes against the ventral iliac walls. The pleurapophysial and transverse processes of the sacral vertebræ opposite the acetabulæ are not modified and lengthened so as to act as braces at the points in question. The pelvis is commonly completely pneumatic.

28. Bones of the shoulder-girdle pneumatic, with sometimes the exception of the os furcula. This latter is of the U-shaped pattern, without hypocleidium; large, flat, scapulo-coracoidal ends (which originate from separate ossific centres in the young), and with laterally compressed limbs. Posterior end of scapula more or less modified to be bent or to curl outward, giving the bone a very unique form. Coracoids long, not very stout, and with the anterior end more or less laterally compressed.

29. An os humero-scapulare present at either shoulder-joint; functional, and has much the same shape as the ossicle has in the *Passeres*.

30. Either the humerus alone, or it together with the long bones of the antitrichium, may be pneumatic. A small sesamoid is found at the elbow. Seven prominent osseous papillæ occur, at nearly equal distances apart, down the shaft of the ulna. The flat, rounded process from the postero-upper third of the shaft of index metacarpal is present. The slender last metacarpal extends below the one of index, and its free digital joint is *larger* than either of the other terminal phalanges. The proximal phalanx of index digit has its posterior blade almost entirely aborted. There are no claws.

31. Femur is always pneumatic, and so may be the tibio-tarsus in some species. In the former, trochanter major does not rise above the summit of the shaft; the excavation on the head is very

shallow. Shaft nearly straight; condyles rather small; popliteal fossa and rotular channel very shallow. *Pici* possess patellæ. Cnemial crest of tibio-tarsus elevated above summit of bone, with pro- and ectocnemial ridges nearly or quite aborted. Condyles of this bone very distinct, and intercondyloid valley very deep. Bony bridgelet confines tendons in front. Fibula short and free; its lower spicula-like end being held well away from shaft of tibio-tarsus by the increasing height of fibular ridge on the latter bone.

Hypotarsus of tarso-metatarsus both grooved and perforated for passage of tendons. An erect process occurs on the summit of this bone of the leg. Its shaft is nearly straight, and its terminal trochleæ are specially modified to meet the podal requirements of the picine zygodactyle foot.

Joints of pes normal—two, three, four and five to first, second, third and fourth toes respectively. Fourth toe permanently reversed, and first toe, together with its free metatarsal bone, may be entirely absent (*Picoides*). A large sesamoid articulates with a special trochlea (intended for it) to the inner side of the fourth toe. The osseous claws usually large, and the other phalangeal joints more or less laterally compressed. The tendons of the leg sometimes ossify to a certain degree, and minute sesamoids may occur in certain tendons near the knee-joint.

BRIEF REMARKS ON THE PROBABLE POSITION OF THE *PICI* IN THE SYSTEM, AND THEIR AFFINES.

Huxley in his "Celeomorphæ" comprehended only the *Picidæ* and *Inygidæ*, and Parker long ago said that "The 'Celeomorphæ' of Huxley form a most natural and well-defined group—a group equal zoologically to the Pigeons or the Parrots. Evidently this differentiation has taken place through the gradual extinction, during long secular periods, of conjugational types more generalized than those now extant." In this much the present writer agrees with the two great authorities we have just quoted.

To those at all familiar with the osteology of existing birds it must be very evident that in this anatomical system, at least, the *Pici* hold many characters in common with the *Passeres*—a fact that will be evident when we come to treat of that group later on. It is my opinion that it is to the great Passerine group that the *Pici* are more nearly affined than to any other existing suborder of birds. One good genus of linking forms, at least, is the South

American *Picumnus*, as Parker has already shown, and Parker believed that the *Pici* "have a *Passerine* foundation."

I here venture to state that as our knowledge of the morphology of *Aves* becomes more perfect the fact will be appreciated that the *Pici* and the *Passeres* are divergent groups from a common stock in time; and that the former have simply become highly specialized and modified in accordance with their mode of life and habits. This common stock Fürbringer has referred to as the "Pico-Passeriformes," and the root-stock just prior to the divergence the "Pico-Passeris," which latter he again subdivides into his families. This also appears to be in keeping with our present knowledge of the subject and what osteology of the groups in question seems to indicate.

PHALLIC RITES AND INITIATION CEREMONIES OF THE SOUTH AUSTRALIAN ABORIGINES.

BY R. H. MATHEWS, L.S.
OF FARRAMATTA, NEW SOUTH WALES.
(Read October 5, 1900.)

This paper is intended as a continuation of the one I communicated to this Society in January last on *Divisions of the South Australian Aborigines*; and the map thereto appended, Plate VI, represents the territory within which the rites now described are in operation. Exigencies of space render it necessary to treat the subject in the briefest possible manner, but it is hoped that each part has been described with sufficient fullness to give a consecutive account of the proceedings.

It may, perhaps, be as well to state that I was appointed by the Government of South Australia a land surveyor in 1883 and a Justice of the Peace in 1884, both of which positions I still hold, by which means I have had opportunities which would not otherwise have occurred of carrying on my inquiries respecting the customs of the aborigines in that colony.

CIRCUMCISION.

When a tribe has a few boys old enough to go through this ordeal, messengers are dispatched by the head men to several of the neighboring tribes to ascertain if they also have some youths

ready for the ceremony. One of the lads to be operated upon whose body is painted with red ochre and grease, with down feathers in his hair, is sent with each messenger. The age at which the boys are circumcised varies from about eight to twelve years, depending upon the growth and development of the subject and other circumstances.

People occupying country a hundred or a hundred and fifty miles distant respond to an invitation of this kind, and assemble at a general camping ground which has been fixed upon by the initiator of the proceedings. The men of each tribe approach the main camp painted and in a meandering line, stamping their feet, and are accorded a formal reception by the local mob, after which they establish their quarters on the side nearest their own country. The boy who accompanied the messenger is borne into the general encampment on the shoulders of one of the men, and the old chiefs shout out the names of well-known localities in the district they have come from. They also mention flowering trees such as the wattle, remarkable mountains and shady trees.¹

In a secluded place, a short distance from the main camp, a space about twenty-five or thirty yards in diameter is cleared of all grass and loose rubbish and partially surrounded by a fence of boughs, where the circumcision of the novices will be carried out later on. These gatherings are generally arranged to take place shortly after the new moon makes its appearance, so that there will be moonlight during some part of every night for two or three weeks; and where circumstances permit the summer time is chosen—the season of the year in which game and vegetable products are the most abundant being preferred.

Festive and preliminary ceremonies are carried on for some days after the last mob has arrived, which I need not now occupy the space to detail. While these performances are in progress the head-men assemble at their private meeting place near the camp, and determine the date on which the novices will be circumcised. As the men of one tribe circumcise the youths belonging to another, as soon as the date is announced the men of the several mobs present pretend to quarrel with each other, on account of their boys being compelled to submit to the rite. During the night considerable sexual intercourse is indulged in, but this privilege is accorded only to those persons who would be entitled to marry each other in con-

¹ *Proc. Roy. Soc. Victoria, N. S.*, Vol. x, pp. 4 and 32.

formity with the tribal laws, and would not be extended to the novices.

On the afternoon of the following day the youths to be operated upon are conducted to the prepared place before referred to and are kept there all night. When the men are taking the boys away, the mothers and other female relatives of the latter dance around and gently strike the men of their own phratry on the shoulder with the open hand. For example, the Koolpirro women would strike the Koolpirro men, and the Thinnawa women the Thinnawa men. After this the women retire, and are not permitted to witness any of the secret portions of the rites. The men who have the custody of the novices are accompanied by young fellows who were circumcised and subincised at previous gatherings of recent date.

A cold night is usually selected for taking charge of the boys, and they are kept at their camp without sleep or clothing. The men shove and pull them about to keep them awake, under pretence of watching for the approach of an enemy. At the first appearance of daylight a short passage is formed by some men standing in a row on one side and some on the other. During this time bull-roarers are sounded in the bush close at hand. A novice is carried along the passage referred to and laid face upward on the backs of several men who are clustered together, and his limbs are held fast. An old man, selected from one of the visiting tribes, then pulls the foreskin forward and cuts it off with a sharp flake of stone. The foreskin is then held up in view of those standing around and its appearance is hailed by acclamation. A new name is now conferred upon the graduate by which he will in future be distinguished. Those who have charge of him put dust or ashes on the wound to stop the bleeding. Being sleepy, cold and weary from the effects of the previous night's proceedings, his body appears to be numb and almost insensible to pain.

The same ritual is gone through in regard to every novice operated upon and a fresh circumcisor is appointed for each. These men profess to undertake their duty with reluctance, and are rubbed over with dust by their comrades before commencing the ceremony. Different ways of disposing of the foreskin are practiced in different parts of the territory treated of in this paper. In some districts it is eaten by the man who cuts it off and his friends, the men standing around being responsible that this is done. In other cases it is eaten by the elder brothers or brothers-in-law of the novice; in

others it is buried in sand or otherwise dealt with, according to the custom of the tribe in whose country the rite is carried out.

When all the subjects have been operated upon, they are placed standing beside their guardians, while two men sound bullroarers in their presence. Some armed warriors now advance in a menacing attitude and threaten the boys in fierce loud tones that if ever they divulge any part of the secret ceremonies to the women or to the uncircumcised, they will be punished with immediate death. About noon human blood is sprinkled over the bodies of the novitiates, and they are kept near the place where they were circumcised during the remainder of the day.

All the ceremonies being now at an end, toward evening there is another mock quarrel, and during the ensuing night the men of each tribe lend their wives to the men of the other tribes present; this privilege, however, is restricted to individuals belonging to the proper intermarrying divisions, and to men who have passed the prescribed initiatory rites. The following morning all the visiting tribes disperse and start on their return journey to their own hunting grounds, taking their respective novices with them.

Each tribe takes charge of its own novices, who are kept under the control of their sponsors after their return to their own country. They are taken away to a camp in the bush until their wounds are healed, during which period they must not be seen by women, and are restricted to certain kinds of food, in accordance with the directions of the old men. Several fires are now lighted to the windward of the graduates, so that they may be enveloped in a dense smoke, after which they are brought back by their guardians to a place previously arranged, where they are met by their mothers and female relatives, and are then taken to a camp near the single men's quarters. At the next meeting of the tribes for initiation purposes these young men will be permitted to be present at all the secret ceremonies which may take place.

C. Provis reports that "among the natives of Fowler's Bay, South Australia, after the boys were circumcised their hair was daubed with grease and clay and rolled into several divisions like rat's tails. A rounded pad composed of emu feathers, grease, clay and human excrement was then placed on top of the head and all the hair brought up over it and securely bound in its place."¹

¹ *Folklore, Manners, etc., of South Australian Aborigines* (Adelaide, 1879), pp. 99, 100.

SUBINCISION.

Splitting the lower side of the male sexual organ is denoted by a different word in each of the several communities among whom it is practiced. It will therefore prevent any confusion as to what is meant if we disregard the native nomenclature and substitute the English term *Subincision*, a name which has already been used by some writers and clearly indicates the character of the rite.

Some time after the wound caused by the circumcision has healed, the tribes are again brought together and the ceremony of subincision performed. The length of time between the two operations varies among different tribes, and is also subject to the convenience of mustering the people and other circumstances. The interval may be only a few months, or it may be a year or two, or perhaps several years. The age at which it is performed is entirely in the discretion of the old chiefs, and fluctuates from about fourteen to eighteen years.

All the preparatory arrangements are substantially the same as already stated in dealing with "circumcision;" and the proponents for initiation must be young fellows who have already submitted to that rite at previous gatherings. On the evening preceding the day fixed for the ceremony, the novices are taken to the appointed place near the camp, where they remain all night without clothing or rest of any kind. No youth who has not been subincised, nor any female, is allowed to see any part of this ceremony.

Early in the morning a novice is caught and thrown face upward on the backs of a heap of men, similar to that described in the circumcision ceremony, and held in position, a bullroarer being sounded by one of the men within hearing, but out of sight. In some cases a man sits astride his chest, so as to render movement of the body impossible. One of the assistants then takes hold of the youth's penis in his fingers and stretches it full length upward along the abdomen. He uses both hands in catching the glans—a hand on each side—and holds it in such a position as to expose the meatus and the urethral canal as fully as possible. The operator, who is chosen from among the strange tribes present, then with a sharp flint cuts the urethra open, extending the incision from the meatus toward the scrotum about two inches, and in some cases almost back to the scrotal pouch. In other districts the urethra is split from near the scrotum to within about an inch of the glans,

but leaving the head of the penis and the meatus uninjured. In the latter case the length of the cleft is from one to two inches or more.

The graduate is then released, and a piece of soft bark or a bundle of fur or down, greased with animal fat, is laid in the incision to keep it open. Wet clay or ashes moistened with a man's urine are also put in the wound to assist the healing. The organ is then bound round with string manufactured by the natives from the bark of a shrub or small tree bearing a yellow flower which grows in the sand hills.

As each youth passes through the ordeal he is placed standing on one side of the cleared space, and when the ceremony is concluded they are all congratulated by the men present, and the caution in regard to keeping the secret is again repeated. The young men are then taken away by their guardians into the bush, and when their wounds are healed they are brought back to a prepared spot in the vicinity of the camp and presented to the people of their tribe. This is done with certain formalities which need not now be entered upon, after which they are invested with the belt, the kilt, and other articles comprising the simple dress of an Australian savage.

During the ceremony of subincision—or at that of circumcision if the latter only is practiced—one or two men are killed and eaten by the visitors, who also drink the blood. The tribe in whose territory the circumcision or subincision has been carried out—these being the people who summoned their neighbors to attend the ceremonies—have to provide the person or persons thus sacrificed from among themselves. I also have evidence of this cannibalistic rite among the tribes occupying the eastern portion of Australia, where the initiation ceremonies take a different form.¹

The Rev. C. W. Schürmann was the first author to accurately describe the mutilation of the penis among Australian tribes.² In 1846, when speaking of the Port Lincoln natives, South Australia, he states: "It consists of a cut from the orifice of the penis along its lower side down to the scrotum, thus laying the passage open in its whole length." In 1845, Mr. E. J. Eyre also reports having observed this peculiar custom in the same part of the country.³ As

¹ PROC. AMER. PHILOS. SOC., Vol. xxxvii, p. 66.

² *Journ. Roy. Soc. N. S. Wales*, Vol. xxxii, p. 250.

³ *Aboriginal Tribes of Port Lincoln, South Australia* (Adelaide, 1846) p. 15.

⁴ *Journs. Expeds. Discov. Central Aus.* (1845), Vol. ii, p. 332.

regards slitting a portion only of the urethral canal and leaving the head of the penis intact, a police trooper named Richards, in speaking of the natives of Fowler's Bay and Davenport Creek, South Australia, says: "An incision is made in the penis from near the testes to nearly the end."¹ C. Provis, a corporal in the police force, referring to the people near the same district, says: "An incision about half an inch long is made in the urethra between the scrotum and glans penis."²

Whether the incision is made from the meatus or there is only a perforation in the middle of the urethral canal in the way described, the subjects always afterward pass their water through the artificial opening. The men partially squat down during micturition and hold the penis horizontal with one hand. After the wound heals the urethra appears as a mere groove which becomes callous; and in those cases where the glans is split, the penis during erection becomes flatter and broader at the extremity than in its natural condition.

There is a widely spread opinion among laymen, and a few medical men have been found concurring in the same view, that the object of this rite is to prevent impregnation. I have made searching personal inquiries over an immense extent of country in Queensland, South Australia and Western Australia, and have collected incontestible evidence that men who have been operated upon in this way can be the fathers of families. Another equally erroneous popular belief is that some of the men are left intact for the purpose of propagating the race. Having carefully investigated this matter I am quite satisfied that in any case where such men have been observed they have been merely visitors from other tribes where the custom was not in force.

SCARRING THE BODY.

Raising cicatrices by means of cutting on the back and chest is a custom of wide prevalence among the Australian aborigines, but more importance is attached to the ceremony in some districts than in others. From Cooper's Creek to the Great Australian Bight the rite may be briefly described as follows:

The subject is kept awake without food or clothing during a cold night, as in the two last described ceremonies, and in the morning,

¹ *Folklore, Manners, etc., S. A. Aborigines* (1879), p. 103.

² *Ibid.*, p. 99.

as soon as it is clear, blood is sprinkled over his body from the arms of some of the initiated and he is required to drink a small quantity, which must be that of a man older and stronger than himself. He is then laid on a heap of green bushes piled up on the ground to serve as a platform, where a man who is not a relative cuts certain lines on the back of his shoulders, on his chest and on the arms with a sharp flake of stone similar to that used in circumcision. The position and extent of the scarring is regulated by the custom of the tribe to which the novitiate belongs. During these proceedings the men standing around make a great noise. After this cutting, which is all done on the same day, a coat of ground charcoal mixed with grease is applied to his body, and he is kept at that place for two or three days.

He is then taken away into the scrubs by some initiated men who act as his guardians and provide him with food. He is not permitted to speak above a whisper, and firesticks are occasionally held close to the wounds to make them open and protrude as much as possible during the process of healing, in order to leave raised scars. Every evening about sundown he is freshly painted with a mixture of charcoal and grease on the arms, chest and face, the mixture being applied freely to the gashes in the flesh.

In the course of about six weeks preparations are made for returning the graduate to the tribe. He is now at liberty to go in quest of such articles of food as game, honey, roots and so on. Next he is painted with red ochre and grease on the lower parts of his body and on the hands and arms as far as the elbows. He is then taken to a spot near the main camp, where he is met and welcomed by the old men. A feast then takes place at which he contributes all the provisions he may have succeeded in obtaining, and gives presents to the men who participated in the ceremony of scarring his body.

As already stated, the youths are taken away from the women after they are circumcised, again when they are subincised, and again after their bodies are scarred. During these long sojourns in the bush with the old men they are permitted to see and listen to certain dances and songs, the secret lore of their forefathers and the traditional customs of the tribe. A mystic language or vocabulary is also inculcated, which is known only to those who have passed through the prescribed course of instruction. Every man and woman, all the animals, plants and surrounding

objects, as well as the principal places in their hunting grounds, have a secret name by which they are spoken of among the initiated, in addition to the general nomenclature with which the women and children are familiar. After the novitiates have passed through the final stages of the inaugural rites, the instruction thus briefly outlined is continued for many years at the single men's camp, at which the catechumens have now the right to be present.

In the portion of South Australia where subincision is not practiced the scarring takes place some time after the boys recover from the effects of circumcision. And in the districts where depilation is the initiatory rite, as in the Narrinyeri and adjacent tribes, the scarring succeeds that ceremony.

It not infrequently happens that after a batch of novices are circumcised, as described in earlier pages, and before the tribes disperse, such of the young men present who have passed through that ordeal at a previous meeting, and have attained a sufficient age, are seized by direction of the head-men and the rite of subincision performed upon them. This is done to save the delay and trouble of mustering the people again for the latter ceremony, in cases where the graduates are few in number.

It may be stated that the women, girls and little boys are forever afterward forbidden to go near any of the localities where the rites of circumcision, subincision or scarring have been carried out, these spots being rigorously tabooed to the uninitiated. This taboo extends to the initiated of a lower degree; for example, a circumcised youth could not enter upon a place where subincision had been performed, and so on.

Certain restrictions as to the food to be eaten by the novices at different periods of their course of instruction have to be complied with, in accordance with ancient custom, under the supervision of the old men.

INITIATION OF WOMEN.

It may be stated generally that among all Australian tribes every girl on attaining puberty is violated, either in a natural way or by artificial means, before she is permitted to have a husband; this is a tribal law from which there is no escape. Among the people treated of in this paper it is found that certain mutilations are performed upon the young women by which the vaginal orifice is permanently enlarged.

When one or more girls have reached the requisite age, which is determined by the first menstrual flux and the development of the breasts, a meeting of the tribe takes place and some festivities are indulged in. The girls are taken by some old women a short distance from the camp, where they are met by men who take charge of them and conduct them to a place where everything is in readiness for the purpose. These men are *Noapa* to the novices—that is, they are men whom they could marry in accordance with the tribal laws. Here a girl is caught and placed lying face upward on the ground, and her hands and feet are held by the men present. An old man, appointed for this duty, then inserts two or three of his fingers, bound round with human hair, into the vaginal orifice for the purpose of stretching it. Sometimes a smooth piece of wood or stone, of the requisite thickness and length, is used to accomplish the same result. In either case the operation is continued until bleeding takes place. In other districts the lower part of the vaginal wall is lacerated with a sharp stone, the incision extending more or less into the perineum. Forcing a large body into the vagina in any of the ways just described causes a rupture of the fourchette, similar to that which usually takes place in the first parturition; and cutting with an edged stone effects the same purpose. Bleeding from the wound is arrested by plugging fur or birds' down into the passage. Shortly afterward all the men present, one after the other, avail themselves of their right of prelibation, or, as it is termed by the French anthropologists, *droit du culage*.

These mutilations, like those upon the men already referred to, are commonly supposed by Europeans to be done for the purpose of rendering the women incapable of bearing children, but I have gathered abundant evidence that there is no foundation whatever for this assumption.

DEPILATION.

This ceremony, the principal feature of which is plucking the hair from the bodies of the graduates, is practiced in the Narrinyeri and Booandik nations,¹ occupying the southeast corner of South Australia. As it is substantially the same as the *Kuranda* ceremony of some of the Barkunjee tribes, described in a paper contributed by me to the Royal Society of New South Wales in

¹ *The American Anthropologist*, Vol. xi, pp. 331-343, Plate V.

1898, it will be sufficient to give the following *résumé* from my previous work.¹

The preliminaries connected with inviting the neighboring tribes and their assemblage at an appointed meeting place are almost identical with the practice of other districts. The time of life at which a youth is considered ready for the ordeal is determined by the first appearance of hair on the pubes and chin. On the morning of the day settled upon for the principal ceremony all the people are astir at daylight. The boys to be operated upon, who have been gathered out of the camp the previous night, are now painted all over with red ochre, their hair being combed and decorated with the white down of birds. When all is ready the guardians take charge of the novices, and a number of men armed with spears surround them in a circle, and all of them march away. The men make a great noise, shouting and beating their weapons together, but the boys remain silent, with their heads bowed toward their breasts.

The mothers of the novices and other women present make a pretence of resistance by throwing pieces of sticks over the heads of the men, but do not attempt to follow them. The men and graduates then proceed to a secluded locality previously agreed upon, perhaps some miles distant, where a camp is formed, and the novices placed lying down on a layer of leaves upon the ground, and are covered over with cloaks or grass, their guardians remaining with them. All the other men make their camp in close proximity. Between the quarters of the boys and those of the men a space is cleared of all sticks and grass, and a fire lighted close by it. In the evening, after the youths have partaken of their allowance of food, they are placed, sitting in a row, near this prepared spot, and the men go through various pantomimic performances, consisting of hunting and other scenes, imitating the animals which are the totems of those present, and certain obscene gesticulations which are usually practiced on similar occasions. Different burlesques take place every evening, and also sometimes during the day if the men are not otherwise occupied.

A week or more may be spent at these camping places in the bush, the time being regulated by the weather and other considerations. When conducting the novices from one camp to another they are obliged to hold a bunch of green boughs in each hand.

¹ *Journ. Roy. Soc. N. S. Wales*, Vol. xxxii, pp. 243-245, Plate XII.

During the afternoon of one or more of the days of this period the novitiates are carried a short distance from the camp, and placed lying down on bushes thickly strewn on the ground, and rugs spread over them. A man then sits down beside each novice, and commences pulling out the hair from the pubes, under the arms and the incipient beard; when one man gets tired he is replaced by another. Beeswax or gum is used upon the ends of the fingers to facilitate catching the hair, which is pulled out singly. The men of the novitiates' own tribe do not take part in the hair-plucking operation, this duty devolving upon the men of the different strange tribes present. The pluckers must be men who have been initiated in the same way at previous gatherings, and are the potential brothers-in-law of the novices who have been assigned to them. Some of the head-men of each tribe sit on the ground near by, directing the proceedings, and a bullroarer is sounded in the vicinity. The hair pulled out of the bodies of each youth is kept carefully by itself, and is given into the charge of one of his relatives, in the same way that the extracted tooth is disposed of in other districts. When the plucking of the hair has been completed the novices are raised to their feet by their guardians and other men, amid the shouts of all present. Each graduate is then painted and invested with the usual regalia of a man of the tribe.

The novices are then cautioned against divulging the details of what they have passed through to any person except the initiated. They are now taken to a place where the women have formed a new camp, where they are met by their mothers and other female relations, who light fires to the windward of them, enveloping them all in a dense smoke, caused by placing green grass, bushes or weeds on the burning wood. The graduates have to pass through this ordeal of depilation at not less than two or three different meetings of the tribes for that purpose before they can be admitted to full membership and be permitted to take a wife.

While the novitiates are going through their course of initiation in the bush with the old men they are shown the sacred bullroarer, and certain crystalline quartz stones which are supposed to protect, or in some way to confer magical powers upon, their possessor.

In the Narrinyeri, and in the Adjadurah nation adjoining them on the west, marriages are regulated by the old men in accordance with fixed rules. The sons and daughters of particular women are

allotted as husbands and wives respectively to the sons and daughters of certain other women, these matters being arranged during the infancy of the parties to the marriage, and in some cases before they are born. In order that every man and woman may be sure of obtaining a conjugal mate, several persons are appointed to each individual of either sex, the same persons being often eligible to several different people. When they all grow up to manhood and womanhood each man claims the woman who has been assigned to him, or, if she has died, he takes one of the other women who were appointed to meet such a contingency. In like manner, if the allotted husband of a young woman loses his life, she is taken by one of the other men provided for the purpose.

MISCELLANEOUS PHALLIC RITES.

Besides the inaugural rites herein described, I am acquainted with other forms of initiation ceremonies in different parts of Australia, in all of which great prominence is given to the sexual organs. In aboriginal carvings of human beings on rocks and on trees, in raised or carved figures on the ground, and in paintings on the walls of caves, the sexual organs are conspicuously displayed. There is much in these rites and customs suggestive of the existence of some form of phallic worship at an earlier period, if not still actually observed, among the Australian aborigines.

In the great gatherings for the Bora ceremonies of the Kamilaroi community a gigantic horizontal image of Byama, a mythologic ancestor, is formed by heaping up loose earth upon the surface of the ground.¹ He is represented lying on his back, with a piece of wood cut into a representation of the human penis projecting from his abdomen. This organ is disproportionately large compared with the dimensions of the body. The initiated men assemble daily on the Bora ground and dance round this image, uttering guttural incantations and making remarks referring to the great size of the penis, and while so engaged they catch hold of their own genital organs in both hands. Similar representations have been observed by me among the Wiradjuri, Koombanggary and several other tribes.

Not far from the image of Byama is the earthen representation of his wife, also of colossal proportions and lying on her back,

¹ *Proc. Roy. Soc. Victoria*, Vol. ix, N. S., p. 144.

with the pudenda prominently exposed, around whom the men execute many libidinous dances.

On a Bora ground at Gundabloui, Moonie river, in addition to Byama and his female consort, there were the images of a man and woman lying together behind a tree¹ in the act of copulating. Similar shouting and dancing to that just described was indulged in around these figures.

Bora grounds always consist of two circles, defined by a low bank of loose earth, with a pathway connecting them, called *thoonburnga*, a word derived from *thoon*, the Kamilaroi name for the penis. The initiated men in going from one circle to the other walk along this track, which is supposed to represent the penis of Dharramoolan, a mystic evil being who is said to preside over the Bora ceremonies.

When the men assemble at the Bora circle and proclaim their totems, as described in my previous memoirs,² they also shout out the name of the penis. Certain localities in their territory are called by names made up from those of the genital organs of both sexes.³ In many tribes the sacred bullroarer is rubbed upon the penis of every novitiate present at the inaugural rites.

During the secret portions of the ceremonies, the novitiates are placed sitting on bushes on the ground, with their hands clutching their genitals. The men place themselves in many obscene attitudes, in some cases fastening a piece of bark to the penis to give it the appearance of being of great length.⁴ At other times they smear that organ with blood to make the boys believe that they have a menstrual flow, like the women. In some instances the men rub their penis on the food given to the novices; in others, they stand in front of the boys, displaying their genitalia, and invite them to take particular notice.⁵

In the pantomimic performances in the bush, in which the totems are represented, a man is hidden in a hollow place in the surface of the ground and covered over with leaves. When the men of the Koorringal presently turn him out of his lair—pretending to the novices that they think it is the nest of a gigantic bandi-

¹ *Journ. Anthropol. Inst.*, London, Vol. xxiv, p. 416.

² *Proc. Roy. Soc. Victoria*, Vol. x, N. S., p. 4.

³ *American Anthropologist*, Washington, Vol. ii, N. S., p. 141.

⁴ *Ibid.*, Vol. ix, N. S., p. 166.

⁵ *Journ. Roy. Geog. Soc. Aust.*, Queensland Bch., Vol. xv.

coot—they roll him over on his back and examine whether he is a buck or a doe.

Among all the aboriginal tribes with which I am acquainted masturbation and sodomy are practiced on certain occasions.¹ It is more general in the Kimberley district and Northern Territory than elsewhere reached by my inquiries, but I have traced them in the inaugural rites and ceremonial corroborories of the natives in all the Australian colonies.

In previous articles I have referred to the enactment of an obscene and disgusting tableau, called *Boballai*.² In several rehearsals of this tableau which I have witnessed there was no actual sodomy, but some of the old head-men present told me the vice was perpetrated in former times during this portion of the Bora ceremonies.

Mr. R. B. Smyth narrates a legend of the Victorian tribes which credits Boonjil, a traditionary ancestral chief, with micturating continually for several days upon the earth, the ample store of urine flowing away and forming the great sea.³

In the Dieyerie tribe the men obtained blood by wounding the penis for the purpose of fixing the down of birds upon their bodies at certain ceremonial dances. Mr. S. Gason⁴ states that when the people of that tribe wish to make the wild fowl lay an abundant supply of eggs some of the able-bodied men sit in a circle, each having a bone from the leg of a kangaroo, sharpened at one end, with which they pierce the scrotum several times. . . . They are generally laid up for two or three weeks afterward and are unable to walk.

Dr. E. C. Stirling, in describing the customs of some tribes in the Northern Territory, states that in some cases of severe illness the sick man is anointed all over with blood obtained by piercing the labia minora. The patient is held by several women while she, whose blood is being used, rubs it all over his body, after which a coating of grease is used. A sick woman may be similarly anointed with blood taken from the male urethra.⁵

¹ PROC. AMER. PHILOS. SOC., Vol. xxxix, p. 125.

² *Journ. Anthropol. Inst.*, London, Vol. xxv, pp. 333, 334.

³ *Aborigines of Victoria* (Melbourne, 1878), Vol. i, p. 429.

⁴ *The Dieyerie Tribe of Australian Aborigines* (Adelaide, 1874), p. 25.

⁵ *Horn Expedition Central Australia*, Part iv, p. 182.

Both male and female urine is applied externally in several kinds of sickness, and is believed to be an excellent remedy. At the initiation ceremonies of many tribes the novices are made to drink the urine of the men, and also to eat human excrement.¹

In several districts, when a boy reaches seven or eight years of age or upward and dies, his mother must submit to the plucking out of the hair of the pubes by the people of her own tribe.

Although the rites and customs described in the foregoing pages may appear very horrible to us, yet we should remember that the savage has been brought up amid similar scenes from his childhood, which causes him to view them in a different light from ours. To him they have all the sanctity and force of divine law; and any neglect on his part to conform to long-established custom would bring down upon him the hostility of the community, and subject him to all the retributive terrors of superstition.

REFERENCE TO THE MAP.

The map to which these references apply is Plate VI, accompanying my paper on the "Divisions of the South Australian Aborigines," published in No. 161 of the present volume of the *PROCEEDINGS* of this Society, pp. 78-93.

The region within which circumcision is performed, and also that in which the additional rite of subincision is practiced, are plainly delineated upon the map in question and fully explained in the letter-press at p. 93.

The map also shows the Narrinyeri nation, V, in which the rite of depilation or hair-plucking is in operation, which also extends into the part of the Booandik nation, VI, which is contiguous on the south.

Scarring the body is in vogue over the entire territory delineated on the map, but is carried out with greater ceremonial in some parts than in others.

Initiation of women is also practiced over all the country represented by the map, but the more rigorous forms of it, detailed in the letter-press, belong to the immense districts west and north of Port Augusta, reaching to the boundary of South Australia in both these directions.

In the northern part of the Kokatha nation, among the Hillary,

¹ *American Anthropologist*, Washington, Vol. ix, p. 339.

Kooyeeunna, Dieyerle, Ahminie, Wonkaoora, Wonkamudla, Yow-crawarrika and Yanderawantha, the custom of extracting one or two of the front teeth is carried out, females being included in some of the tribes mentioned. In the remainder of the territory shown on the map the teeth are not interfered with.

Stated Meeting, October 19, 1900.

Vice-President SELLERS in the Chair.

Present, 20 members.

The death of Sir Henry W. Acland, Bart., K. C. B., at Oxford, England, on October 16, 1900, was announced.

Dr. J. Cheston Morris read an obituary notice of Dr. Henry Hartshorne.

The following papers were presented for the *Transactions*:

By Prof. C. L. Doolittle, on "Results of Observations Made at the Sayre Observatory, South Bethlehem, with the Zenith Telescope, from January 19, 1894, to August 19, 1895."

By Mr. O. P. Hay, on "The Chronological Distribution of the Elasmobranchs."

Mr. Rosengarten corrected an error in his paper, read before the Society April 6, 1900, entitled "American History from German Archives," and printed in Vol. XXXIX, No. 162, p. 129, etc., of its PROCEEDINGS, as follows:

It is there stated that "the Count of Zwei-Brücken (Deux-Ponts) published his *American Campaigns* in Paris in 1786, and his pamphlet was translated and reprinted by Dr. Green, of the Massachusetts Historical Society." The blunder of thus taking away from Dr. Green the credit due to him for the discovery and publication of the *Journal of Deux-Ponts* is inexcusable. Dr. Green published it in Boston in 1868, and in the Introduction tells the whole story: in June, 1867, he found the MS. *Journal* on a second-hand book-

stall in Paris, and he printed it, both in the original French and in an English translation, for the first time in Boston in 1868.

His notes, etc., give it a special interest and make it a valuable addition to contemporary records of our Revolutionary history.

To overlook this great merit and assign the printing of the *Journal of Deux-Ponts* to an unknown publication in Paris in 1781 is an inexcusable blunder. How it occurred it is difficult to explain—whether it was an error in the transcription of the real date of publication, 1868, and of the place as well as the time of printing, or a mistake for some other pamphlet, but it is now a simple duty to correct the error and to emphasize the fact that we owe the preservation of the *Deux-Ponts Journal* and its publication to Dr. Green and to him alone. It was not printed in Paris in 1786, nor anywhere at any time, until Dr. Green found it, rescued it and printed it in Boston in 1868, with a wealth of valuable material in the notes, etc., that could be gathered only by a ripe scholar thoroughly master of all the history of the period covered by the *Deux-Ponts Journal*. It is only one of a long series of valuable historical contributions made by Dr. Green, for both as a student and scholar and as the Secretary of the Massachusetts Historical Society, he has been one of the most intelligent and industrious collectors of original material for American history. To take away from such a man the credit due him for the preservation and publication of the *Deux-Ponts Journal* by a careless misprint and misstatement is a blunder that calls for an apology from the person who perpetrated the error; he therefore asks leave to print and put on record in the PROCEEDINGS OF THE AMERICAN PHILOSOPHICAL SOCIETY, where his mistake was put in print, this correction. Dr. Green is entitled to all the credit for finding, editing and printing the *Deux-Ponts Journal* in Boston in 1868.

The Society was adjourned by the presiding officer.

Stated Meeting, November 2, 1900.

Vice-President WISTAR in the Chair.

Present, 28 members.

Dr. Wharton Sinkler, a newly elected member, was presented to the Chair, and took his seat in the Society.

The Librarian laid upon the table a list of the donations to the Library, and thanks were ordered therefor.

The decease of the following members was announced :

Dr. Edward R. Squibb, at Brooklyn, on October 25, aged 81 years.

Rt. Hon. Friedrich Max-Müller, at Oxford, England, on October 28.

Dr. A. E. Kennelly made some remarks on " The Electrical Features and Novelties of the Paris Exposition," and Mr. Carl Herring spoke on the same subject.

Prof. Edwin Grant Conklin was elected a Councillor to fill the unexpired term of the late Dr. J. M. DaCosta.

The Society was adjourned by the presiding officer.

Stated Meeting, November 16, 1900.

Vice-President SELLERS in the Chair.

Present, 23 members.

Prof. E. W. Brown and Mr. Percival Lowell, newly elected members, were presented to the Chair and took their seats in the Society.

Letters were read from Hon. George Gray, of Wilmington, Del., accepting membership in the Society, and from Prof. E. G. Conklin accepting election as a Councillor.

The Librarian laid upon the table the list of donations to the Library, and thanks were ordered therefor.

Mr. Percival Lowell presented a paper upon " Evidence from Mars Upon the Cause of the Glacial Period," which was discussed by Profs. Doolittle, Snyder and Brown and Vice-President Sellers.

The Society was adjourned by the presiding officer.

MARS ON GLACIAL EPOCHS.

BY PERCIVAL LOWELL.

(Read November 16, 1900.)

1. Croll's ingenious theory that eccentricity of orbit combined with axial tilt produced our glacial periods challenges comparison outside the earth. And an example lies ready to its hand, in the planet Mars. For Mars not only presents appearances singularly suggestive of our polar snows, but stands so conditioned in eccentricity and tilt as to promise a criterion of a crucial character.

In consequence such appeal was very soon made and with the result of a seemingly complete denial. Although admirably circumstanced to exemplify the theory Mars did nothing of the sort. No marked preponderance of snow distinguished the hemisphere which glaciation should have covered. The ill-conditioned one showed as conclusive a snow-sheet as its fellow. Eccentricity apparently was powerless to effect vitally deposition about the pole.

This was more than a quarter of a century ago, and the last quarter of a century has revolutionized our ideas of the physical condition of Mars. Especially in the matter of water, we now have knowledge which has particular bearing upon the subject. We no longer believe Mars to be a counterpart of the earth. Among much that is analogous we see much that is the reverse; and with the flight of the similar the cogency of the argument departs. In the light of this change it becomes advisable to reopen the case; and I therefore make bold to introduce it to the notice of the Society.

2. Round about those parts of Mars which the motion of the markings point to as the planet's poles may be seen two roughly circular white patches, sharply contrasted with the other features of the disk. Each is fairly regular in shape, but changes in size according to what more particular inquiry shows to be the changing seasons of the planet's year. When the one patch is large the other is small; and as the one waxes the other wanes, the mass of white shifting from pole to pole with a certain chronometric cadence. Both appearances and behavior commended them to Sir William Herschel for polar snows, and such they have generally been considered since. Indeed the more minute our study of them, the more they seem to justify the imputation.

3. The obvious simplicity of this explanation, however, has tempted some ingenious minds to see in the exhibit not frozen water, but frozen carbonic acid gas. For under great stress of cold, carbonic acid not only takes refuge in the solid form, but does so with all the delicate purity of snow. The transformation demands, indeed, a very low temperature and to this end was the idea invented; inasmuch as the distance of Mars from the sun seems hard to reconcile with a mean temperature comparable to that of our earth. Now as it is of the first importance to the inquiry before us to be as certain as possible whether it be really snow or ice that we gaze upon over there in space, I make no circumstance of confronting at once this hypothesis.

Plausible as the suggestion of carbonic acid sounds, examination of the fitness of the substance for the place discloses one fatal defect. Carbonic acid and water agree well enough in their solid state and are not incompatible in their gaseous one, both being then invisible; but they are not at all at one upon their intermediate condition. As fluids their behavior is quite diverse, and Mars chances to exhibit the very effect which this diversity should cause. It is a peculiarity of carbonic acid that it is not at home as a liquid, passing, except under great pressure, at all temperatures practically instantaneously from the solid into the gaseous state. Under one atmosphere or less the curves representing the melting and the evaporation points of this substance lie almost side by side. And they do this as conclusively at very low temperatures as at relatively high ones. Carbonic acid insists on volatilizing. Thus no place is left in the economy of its behavior for a permanent liquid, whatever the degree of cold.

Now, one of the most striking features of the polar caps is the unmistakable exhibit of such a liquid. Seventy years ago, Beer and Mädler noticed a dark band surrounding the northern cap, but the full significance of the observation seems to have escaped deduction. Since then several observers have noted this band on one or other of the caps; and W. H. Pickering, in 1892, added a most significant detail, a large bay connected with the one about the southern cap. Farther study has brought out still more detail of the sort. Under this scrutiny the character of the phenomenon appears in so clear a light as to preclude mistaking its import.

The state of things seems to be this: So soon as either cap begins to shrink, there proceeds to surround it a blue belt. The belt in-

creases with the increased rate of diminution of the cap and decreases as that diminution falls off; meanwhile, it keeps pace with the cap, shrinking with it so as always to border its outer edge.

It is difficult to conceive how anything could more conclusively proclaim itself the liquid product of the disintegration of the cap. This badge of blue ribbon seems to mark the substance as H_2O .

4. Against this pronounced appearance and decisive conduct on the part of the cap, what difficulties have we to oppose to its acceptance for what it purports to be? Two such present themselves, both on the score of general temperature: first, the less heat received by the planet due to its greater distance from the sun, a heat only the moiety of what falls to our lot; secondly, a thinner air at the surface than that we know, perhaps in amount but a seventh that of our own. Are either of these objections fatal? Upon scrutiny I think we shall see that neither of them necessarily is so, on account of certain counterbalancing facts.

5. In the first place, not all the heat intercepted by the earth reaches its surface which might do so, quite apart from what is necessarily reflected. From the commotional character of our sky, it is safe to say that the earth fails of half the heat it would receive were that sky perfectly clear. What with storms, passing clouds and haze, fully more bar than passage is offered to the rays. Now the Martian sky is clear, perpetually so. All the heat a pure sky permits of passage falls unhindered upon the soil. Its frugal atmosphere wastes nothing. Thus receptivity makes up what distance denies.

6. As regards the second point, it used to be thought that air, pure and simple, furnished the earth with the cloak that kept out the cold of space. But it is no longer considered thus effective. Tyndall made experiments on the subject to the deduction that not air, but water vapor it was that did the business. Since then the enormous preponderance of power ascribed by him to water vapor has been questioned; but experiments to disprove it labor under the disquieting impossibility of excluding the vapor itself from the test. To get perfectly dry air is as difficult as to get a perfect vacuum; and the least trace of water vapor is potent to vitiate the whole transaction.

As figures are here of importance I shall quote him on the subject. In his "Rede" lecture at Cambridge, in 1867, Tyndall says:

"Compared with the great body of the air, the aqueous vapor it contains is of almost infinitesimal amount, $99\frac{1}{2}$ out of every 100 parts of the atmosphere being composed of oxygen and nitrogen. In the absence of experiment, we should never think of ascribing to this scant and varying constituent any important influence on terrestrial radiation; yet its influence is far more potent than that of the great body of the air. To say that on a day of average humidity in England the atmospheric vapor exerts one hundred times the action of the air itself, would certainly be an understatement of the fact; . . . and I am not prepared to say that the absorption by this substance is not two hundred times that of the air in which it is diffused."

And below he goes on :

"Probably a column of ordinary air ten feet long would intercept from ten to fifteen per cent. of the heat radiated from an obscure source, and I think it certain that the larger of these numbers fails to express the absorption of the terrestrial rays effected within ten feet of the earth's surface."

But England has a very moist climate. If, then, the trace of vapor there be but the $\frac{1}{200}$ part of the whole, much less must it be elsewhere. If we call it one $\frac{1}{500}$ part of the main body of the air, in the drier regions of the earth, and consider the Martian atmosphere at the surface of the planet to be one-seventh of our own at sea level, the vapor tension might be as great as ours and yet the total amount of vapor present but $\frac{1}{700}$ of the whole atmosphere. In which case it would render that air as effective a covering as our own. I am far from saying that this is the case; the more so that, as we shall presently see, there are local conditions which, in the event of its being as copious as, would render it much more effective than, our own. But it is worth noting how little we need go out of our way in possibilities to furnish Mars with sufficient covering.

7. While we are on the subject of carbonic acid, we may note that that gas shows, unlike water vapor, remarkable exclusiveness in the absorption of heat. Ångström finds its absorption belt in the spectrum very circumscribed, and in the lecture quoted above Tyndall tells us that practically it absorbs no heat but what radiates from carbonic acid itself. Such domesticity limits its absorptive efficiency in the world at large. The result of which is that there would be a tendency to equalize its deposit over the whole planet; for the surface covered by carbonic acid snow would

be kept warmer and the surface bare of it colder than each otherwise would be until carbonic acid was deposited over the whole.

8. From the foregoing it is clear that the amount of moisture consonant with temperate conditions upon the planet does not require to be great. We need, therefore, feel no surprise that spectroscopy should as yet give us uncertain answer on the subject. Huggins found marks of the presence of water vapor in the planet's spectrum; Campbell could find none. And the latter thought he should have done so had the amount been so much as one-fourth of our own.

But there is another drawback to this deduction. It is possible to point out a fallacy in the assumption of the data upon which the detection depends. We are told that the light examined has passed twice through the Martian atmosphere. But this is not the fact. A part of it has done so indeed, but only a part. A considerable portion has never traversed that atmosphere at all. We should know *à priori* that this could not but be the case. But we are not left to *à priori* reasoning in the matter. We have direct evidence of the fact. One of the peculiar details of the disk the planet shows us is the presence over a part of it of a veil which is not only unmistakable but pronounced. This veil is known as the limb-light. Extending in from the limb along its whole length is a brilliance strong enough to swamp all but the heaviest markings for a distance in of thirty degrees. Circumstances of position show that this can only be the effect of an atmosphere (*Annals Lowell Observatory*, Vol. I). It must extend over the whole disk, but becomes conspicuous only as we approach the limb, owing to the greater depth of it passed through as we increase the inclination. It should vary roughly, though not exactly, as the cosecant of the angle in from the limb. The effect might be due to anything suspended in the air—dust or water vapor. It does not seem possible as yet to evaluate it satisfactorily, but from its action it would appear to bear no inconsiderable ratio to the rest of the illumination. Suppose this ratio to be one of equality—and the amount of obscuration it effects show this to be no unseemly supposition—then its presence would halve the precision, and instead of being able to detect a quantity one-fourth of our own, we should only be able to perceive the double of that.

9. Now, whatever moisture there be on Mars—and water there must be to some extent, since otherwise no seasonal change could

occur, and that such change does take place is an indisputable fact of observation—such moisture would be rendered more potent there than it is on the earth by two Martian specialties in the matter of climate: first, the condition of the sky by day and, second, the state of the sky by night.

The day-sky on Mars is distinguished by being almost perpetually clear. From dawn to dusk daily and from the year's beginning to its close, the sun shines down upon the planet's surface out of a heaven unflecked by cloud. I have mentioned this above, but one deduction from it I want to bring forward more prominently. Not only does a clear sky give ingress to warmth by the absence of cloud, but if it contain water vapor it plays in addition the part of cloud itself. It exerts the efficiency of cloud and the efficiency of sunshine combined. For it lets in the warmth and then will not let it out again. In short, this transparent moisture suspended in mid-air is as a glass to make of the planet a conservatory. And when we reflect that this is true all over the planet at all times, we see that even the chief disturber of such a state of heat accumulation, the influx of cold winds from elsewhere, is as much as possible stopped.

The importance of this solidarity in fair weather climate can hardly be overestimated. It is the indraught of colder winds that thwarts that hothouse heightening of the temperature which we experience in the days called weather-breeders. It is true that the coldness of the incoming winds is consequent on many causes, and universal sunshine would not avail to prevent a fall of temperature due to such circulation; but a general heating of the ground, especially to the northward, would certainly temper its effects, not so much by equalizing the extremes, if indeed it would do this at all, as by raising the means.

10. The night-sky on the planet abets the action of the day one. Just as the day sky is cloudless so the night-sky apparently is cloudy. This is the outcome of Mr. Douglass' study of projections upon the terminator. By first observing and then classifying over four hundred of such projections, he came to the conclusion that the appearances could not be produced by bodies contiguous with the planet's surface. In other words, the optical effects were not such as could be caused by mountains, but were such as could be caused by cloud. Thus interpreted he finds that, though the sky is fleckless all day, at sunset clouds begin to form, showing their presence by

the way in which they are lit up into the night after the sun has set to the ground below. In like semblance of beacons he finds them out beyond the sunrise terminator, heralds of the dawn.

Whether the cloud canopy has been continuous the night long we cannot of course positively affirm. That it has been so seems probable, inasmuch as the conditions which caused it to form would continue to some extent on through the night. The surface would grow colder and colder, thus keeping up the condensation into cloud above it. And this state of things would last till sunrise, as the coldest moment, so far as the heat received from the sun goes, is the moment before the dawn. That at that time we find the clouds still there is strong presumption that they have not left their posts during the night. The effect of such a cloud canopy to the planet during the night hours is as important as the lack of it was important by day. It effectually shields the surface from depleting radiation. It thus helps husband what the day garnered of heat. It acts again the part of the glass in a greenhouse.

11. So much on the score of authenticity of appearance presented by the Martian polar caps—so much, that is, toward the establishing that they are what they purport to be.

From the constitution of the caps we pass now to the second point in which the planet recalls our own for purposes of glaciation, to wit: in the character of its orbit. The caps show us apparently that the necessary material is present; the orbit assures us that the necessary cosmic conditions are fulfilled.

At the present time the orbit of Mars is possessed of an eccentricity about five and a half times our own. Our earth's is .0168; that of Mars .0933. The planet's axial tilt, too, is consonant with the conditions of a criterion; for it is closely accordant with the earth's. According to Schiaparelli, who has made the last and undoubtedly the best determination of this tilt, the planet's equator is inclined to its ecliptic $24^{\circ} 52'$. That is 25° .—for the quantity cannot be found to within the nicety of a few minutes—represents on Mars what $23\frac{1}{2}^{\circ}$ does on the earth, the tilt of the planet's poles and the consequent breadth of its arctic regions. The slight difference between the two values would simply increase by so much the theoretical effect of the eccentricity.

We have then in the case of Mars at the present moment both eccentricity and tilt, such as to enhance whatever effect might be expected. For by an odd coincidence it so chances that these essen-

tials are circumstanced nearly the same. In both planets the solstices fall not far from the line of apsides. What is more, it is the same solstice that occurs near perihelion in each case. Mars comes to perihelion in longitude $153^{\circ} 4'$ and to the summer solstice of his northern hemisphere in longitude $176^{\circ} 48'$; our earth reaches the like points in her orbit, the perihelion in longitude $281^{\circ} 21'$, the summer solstice of her northern hemisphere in longitude $270^{\circ} 14'$ respectively. Thus both planets pass those points, whose near coincidence is vital to the effective working of the eccentricity, in close succession. With Mars the summer solstice follows perihelion; with the earth it precedes it. This has the effect in the northern hemisphere of clipping the Martian beginning of summer as compared with its end, and of curtailing the mundane end of it as compared with its beginning; similarly in the southern hemisphere of both with regard to winter.

Curious it is that both planets should turn to the sun their corresponding hemispheres correspondingly—an agreement in inclination which permits of paralleling, by what may at the moment be discerned on Mars, what would happen on the earth during an accentuation of eccentricity such as is invoked to account for a glacial period. It would show itself, too, under magnification. For the greatest maximum possible to the earth's eccentricity is, according to Leverrier, .0747, or a fifth part less than that of Mars now.

21. Having surveyed the situation, material and mechanical, we may now turn to the phenomena. When we do so we are confronted at once upon the planet by what appear to be unmistakable polar caps, fairly comparable with our own in size and behavior, but with a difference. Ours are first distinguished by their greater extension. In our northern hemisphere the ground in winter is covered by a permanent mantle of snow down to about latitude 45° . This represents our snow-cap at that season, as it would appear to an outsider. In this we live and move and have our being for some four months, and it is at least a pregnant thought that to such an outsider the highest development of life upon our planet should seem thus for nearly half the year to have its existence within the polar cap. It opens our eyes, abstractly as well as personally, thus for a moment to see ourselves as others see us. Our northern polar snow-cap, then, covers on the average round the globe 90° or more at its most. If we take occasional snowfalls into account the maximum might be considerably stretched; for snow sometimes not only

falls but lies below latitude 35° both in America and Asia, and if our sky were clear, as that of Mars is, would be distinctly perceived by an onlooker as part, even if a detached part, of the polar cap. From its maximum the cap then dwindles till at its least, about two months after the summer solstice, it has so shrunk as to measure only about 40° across.

With regard to our southern cap, it is not possible to affirm so positively either the maximum or the minimum because of the presence there of surrounding oceans. Nevertheless it is apparent, from the greater cold of corresponding southern latitudes, that at its greatest the cap would exceed its northern fellow if duly given ground; while the summer glaciers of Terra del Fuego show that it would probably be the greater of the two at its minimum as well.

Now on Mars the northern cap attains at its height a width of 70° , which event occurs about one hundred of our days, or fifty-three of its own, after its winter solstice. About the middle of February this date corresponds to on earth. It then decreases regularly to its minimum, which takes place about the same time after its summer solstice. Near the minimum it remains some time. At this, its smallest compass, it measures only some 3° across.

Confining ourselves now for the moment to what we can directly compare, the northern caps of the two planets, we find a difference in relative size between them at both their extremes in the same direction. That of the earth is bigger than that of Mars, both at maximum and at minimum. As to the maximum, this happens in spite of the fact that the Martian year, and therefore the Martian winter, is nearly twice as long as our own, so that for nearly double the time any given northern latitude there is tilted away from the sun.

This is not all. If we express analytically the area of a zone embracing the pole of given breadth in degrees θ , we find for its value

$$\begin{aligned} \theta &= \theta \\ \int \int_{\phi=0}^{\phi=2\pi} r^2 \sin \theta \, d\theta \, d\phi \\ \theta &= 0 \end{aligned}$$

Where r is the radius of the sphere, ϕ the azimuth and θ the polar distance,

$$\begin{aligned} \theta &= \theta \\ &= -2\pi r^2 \cos \theta = 2\pi r^2 (1 - \cos \theta) \\ \theta &= 0 \end{aligned}$$

From this we see that the maxima and minima on the earth are as five to one; while on Mars they are as 130 to one. The ratio of decrease due to summer melting is then twenty-six times as great in the latter case as in the former.

To the belief that Mars lacks warmth this comparison is calculated to give a shock of surprise. But however that be, we come next to an even more unexpected result.

13. This next feature is the difference in behavior of the two caps. At its greatest the southern cap surpasses the northern one; at its least it falls below it, passing it the other way.

It is both bigger in winter and smaller in summer than its northern counterpart. It thus outdoes its fellow in action generally—in accumulation first, in dissipation afterward. Beer and Mädler stated this long ago, though curiously enough upon quite erroneous data. Surprising as the circumstance is—for it becomes more surprising on consideration—I think it can be shown to be the fact.

In the case of the maxima direct data on the point are lacking. The maxima are not easy to determine, owing to the tilt of the axis and the fact that the solstices occur nearly at the apsides, and they never have been determined. We have, with two exceptions, only determinations made a long way one side or the other of the date of the maximum. One of these exceptions was that of Sir William Herschel, made six months before its summer solstice, and therefore about 145 days after its winter one. In 1781 he estimated the diameter of the southern cap at 60° .

In 1798 Schroeter made it 50° four months before the summer solstice. While Mädler in 1837, at the time of the winter solstice, estimated it at 70° . It is quite possible that he mistook some of the southern islands for the cap, a mistake made by more than one observer. No further approach to a maximum is recorded till Schiaparelli observed that of 1882, 150 days before the summer solstice, at 45° . All of these were too far away from the true time of the maximum to give even approximations of it.

The second exception was the determination made at Flagstaff in 1896-97 on the north pole, of which a transcript follows. The extent of the cap has been got by taking its width from the figure (*Annals Lowell Observatory*, Vol. ii, page 232) between two given dates; and the number of days before the solstice has been put as the mean of these two dates.

<i>Width of Cap.</i>				<i>Days after winter solstice.</i>	<i>Days before summer solstice.</i>
Jan.	11-Jan.	25	50° Jan.	48	
	17- "	28	47	55	
	31-Feb.	10	60 Feb.	78	
Feb.	6- "	17	72 "	90	
	13- "	21	71 "	100	260
(Mar.	22-Mar.	30	77 Mar.	174)	
	23- "	31	73	177	183
	26-Apr.	4	72 "	182	178
	29- "	7	63 Apr.	188	172
Apr.	1- "	11	63 "	197	163
	13- "	20	58 "	218	142
	16- "	26	49 "	230	130
	24-May	2	51 "	245	114
May	26-June	4	22		43
	28- "	6	18		39

It will be seen from this that we have but two determinations at all to the point—those of 1781 and 1897—and neither of these as definite as is desirable.

That the maxima apparently occur about one hundred days after the winter solstices of their respective hemispheres we can gather from the observed times of the minima, of which we know very much more. But we can only surmise this, subject to future correction.

Although the direct data are thus inconclusive on the subject of relative size, there are, however, what we may call indirect data in the case. If we compare the two caps at corresponding periods before the time of solstice we shall get a fair idea of their state midway in their career. And for this comparison we do possess very respectable data, since at this stage both caps have been fairly often and fairly well observed. Tabulating all the records from ninety-two days before to thirty days before their respective summer solstices for the two caps, we have the following list :

SOUTH CAP.			NORTH CAP.		
<i>Days before summer solstice.</i>		<i>Size.</i>	<i>Days before summer solstice.</i>		<i>Size.</i>
1862	48	36° Lord Rosse	1882	82	20° Schiaparelli
1877	34	29° Schiaparelli		77	27°
1890	63	30° "	1884	84	30°
	55	25°		76	28°
	48	25°		65	25° "
	35	20° "		55	25°
1894	89	50° Lowell Obsy.		46	22°
	76	39°		35	25°
	69	37°	1886	85	30°
	52	31°		55	21° "
	44	25°		32	12° (mean)
	42	13°			
	33	27°	1897	43	22° Lowell Obsy.
				39	18°
			1899	92	40° Flammarion & Antoniadi
				77	35°
				75	36°
				58	33°
				41	30°

SOUTH CAP.		NORTH CAP.
<i>Days before summer solstice.</i>	<i>Mean.</i>	<i>Mean.</i>
92-80	50°	30°
80-70	39	32°
70-60	34	25
60-50	28	26
50-40	25	25
40-30	27	18

From this it appears that from ninety-two days to thirty days before their respective summer solstices the southern cap is continuously larger than the northern one. Furthermore, that it exceeds the latter most the farther away it is from the solstice. From which we may conclude that at its maximum it also surpassed the latter.

Any correction for irradiation would but increase the contrast, since the north polar cap is necessarily observed from a much

greater distance than the southern one when seen thus near its summer solstice; and the irradiation being the same for both in seconds of arc becomes, with decreased size of disk, greater as measured in Martian degrees.

14. As a preliminary to an explanation of this phenomenon, it is necessary to consider the general laws of planetary insolation, or, in other words, the amount of heat received from the sun by different parts of the planet at different times.

The total quantity of heat intercepted by the planet as a whole in passing from any point of its orbit round to the same point again is a function of the eccentricity of the orbit. For heat or light, like gravity, diminishes inversely as the square of the distance. But the quantity of gravity received, if we may so express ourselves, is measured as follows:

Since equal areas are swept out by the radius vector in equal times, or $r^2 d\theta = h dt$; and since $cg_1 = \frac{1}{r^2}$

$$c. h. dt. g_1 = d\theta$$

or

$$h C. G. = 2\pi$$

where G = total gravity received during a revolution. Now if the major axis of two orbits be the same, the period is the same. Consequently in this case G varies inversely with h . But

$$h = \sqrt{\mu a (1-e)^2}$$

whence

$$ah^2 = \mu b^2$$

$$h = \frac{b \sqrt{\mu}}{\sqrt{a}}$$

Whence the total gravity and consequently the total heat received varies inversely as the minor axis of the orbit, and is therefore a function of the eccentricity.

15. But the relative amount received in passing from one equinox to the other does not vary but is the same, as D'Alembert showed, from whichever equinox we set out. That is, the planet has as many units of caloric fall upon it in traveling from the vernal to the autumnal equinox as from the autumnal to the vernal one. Indeed, whatever point we are pleased to take for starting point,

180° journey out will see as many calories reach it as the subsequent journey of 180° in. For

$$r^2 d\theta = h dt.$$

whence

$$d\theta = \frac{h}{r^2} dt$$

That is the angle swept over is at all points proportional to the amount of heat received, since this amount is always inversely as the square of the radius vector.

16. Thus the heat received through any angle is independent of the eccentricity. But it is not independent of the axial tilt. The amount of heat received at any point, in consequence of the tilt, depends upon the position of the point. At the pole it varies from nothing for the six months about the winter solstice to

$$\int \frac{1}{r^2} \sin \delta. dt = \int \frac{\sin \theta \sin \epsilon}{h} \frac{d\theta}{h}$$

for the other six about the summer one.

For a hemisphere, taken as a whole, the total summer insolation much exceeds the winter one (Weiner, Ueber die Stärke der Bestrahlung, *Zeitschrift der Oesterreichischen Gesellschaft für Meteorologie*, 1879; also Sir Robert Ball, *The Cause of an Ice Age*, 1892).

Let $2H$ be the amount of heat falling on a section equal to the earth at unit distance in unit time, and let δ be the declination of the sun.

Then the amount received by one hemisphere at distance r in the time dt will be

$$\frac{H}{r^2} (1 + \sin \delta) dt$$

and by the other

$$\frac{H}{r^2} (1 - \sin \delta) dt$$

but

$$r^2 d\theta = h dt$$

whence the above

$$\begin{aligned} & \frac{H}{r^2} (1 + \sin \delta) dt \\ &= \frac{H}{h} (1 + \sin \delta) d\theta \end{aligned}$$

again, since $\sin \vartheta = \sin \theta \sin \epsilon$, where $\epsilon =$ obliquity of the ecliptic the above becomes from equinox to equinox

$$\int_0^\pi \frac{H}{h} (1 + \sin \epsilon \sin \theta) d\theta = \frac{H}{h} (\pi + 2 \sin \epsilon)$$

and for the other hemisphere

$$\frac{H}{h} (\pi - 2 \sin \epsilon)$$

With $\epsilon = 24^\circ 52'$, the present received value on Mars, we have the two in the proportion of 63 to 37.

But though the summer and winter insolation thus differ, they are the same for each hemisphere in turn. Consequently the above cannot be the cause of the differences in question between the respective maxima and minima of the polar caps.

17. Not the amount of heat but the manner of its reception, then, is responsible for the difference we observe. Looking at it in this light we shall detect certain diversities of position competent possibly to the result.

Of the opposite variations presented to us by the two caps, the one most difficult to detect is the easiest to explain. The difference in the maxima seems to be due to the surpassing length of the antarctic night.

Owing to the eccentricity of the orbital ellipse and the position of the solstices, the southern hemisphere is both farther away from the sun during its winter and is so for a longer time. The arctic polar night is 306 of our days long; the antarctic 381. Thus for seventy-five more days than happens to its fellow, the southern pole never sees the sun. Now since the total sunlight from equinox to equinox is the same in both hemispheres, its distribution by days is different. In the northern hemisphere the same amount is crowded into a smaller compass in the proportion of 381 to 306; that being that hemisphere's relative ratio of days. But since, during the winter, there is a balance of accumulation over dissipation of snow, each twenty-four hours must on the average add its tithe to the sum total. The northern days, being the warmer, each add less than the southern ones; and furthermore there are fewer of them. On both these scores the integral of the additions about the northern pole is less than about the southern one. Consequently the snow sheet is there the less developed.

18. With the minima the action is otherwise. Inasmuch as the greater heat received during the daylight hours by the southern hemisphere is exactly offset by the shortness of its season, it would seem at first as if there could be no difference in the total effect upon the two ice-caps.

But further consideration shows a couple of factors which might, and possibly do, come in to qualify the effect. One is that the diurnal heat, being more intense though not so long continued, might work to more advantage. For the water would be the more likely to flow away the greater was the quantity of it manufactured; or if it were caught up into the air more of it would be wafted away beyond reach of refreezing. It is the freshly acquired mobility that does the business. As ice the substance is chained to the spot; as water or vapor it is free to roam; and natural conditions at once transport it out of the region and so out of the problem.

The second factor is due to the action of the intervening nights. The vapor set free during the hours of sunshine is not all deposited during the night, as is witnessed by the presence of sunrise clouds. Such part as is not precipitated forms a blanket for the ground, preventing the heat of the surface from being radiated off into space. The greater the evaporation during the day the denser, other things equal, would be the cover-lid at night and thus the less heat be permitted to escape. This saving of heat is just so much to the good in the struggle of relative dissipation on the side of the southern hemisphere. The next day does not find so much to undo before it can make its own advance. Thus the whole effect in melting the snow would be greater upon that hemisphere whose summer happens to be the more intense.

19. It would appear then that on Mars not only has the eccentricity no tendency to foster the retention of an extensive ice-cap about the pole of that hemisphere which has its summer solstice near perihelion, but that the permanent accumulation there is actually less than at the opposite pole.

20. Now suppose the total deposit of ice in winter to increase. Call

a, the southern cap at its maximum.

b, the same at its minimum.

a_1 and b_1 the respective maximum and minimum for the northern cap.

x the increased ratio of deposition, where $x > 1$: then

$a - b$ equals the amount of the southern cap melted during the summer.

$a_1 - b_1$ equals the same for the northern cap.

$xa - (a - b)$ will then represent the size of the southern cap at its new minimum, and

$\frac{xa - (a - b)}{b}$ or $\frac{(x - 1)a + b}{b}$ will be the ratio of the old minimum to the new. The ratio of the old maximum to the new is $\frac{xa}{a}$ or x

Now $\frac{(x - 1)a + b}{b} > x$, for if it were equal to it we should have

$$(x - 1)a + b = bx;$$

whence $(x - 1)a = (x - 1)b$ and since $a > b$ the first member would exceed the second.

Thus the minimum would increase at a faster rate than the maximum with increased deposit.

For the northern cap we have similarly

$$\frac{(x - 1)a_1 + b_1}{b_1}$$

The similarity of the expressions shows that the same result would hold here too.

But furthermore we have for the ratio of the maximum-minimum ratio of increase in the two caps respectively:

$$\frac{(x - 1)a + b}{b} \quad \text{to} \quad \frac{(x - 1)a_1 + b_1}{b_1}$$

The first member exceeds the second, for

$$\frac{(x - 1)a + b}{b} > \frac{(x - 1)a_1 + b_1}{b_1}$$

Since

$$\frac{a}{b} > \frac{a_1}{b_1}$$

So that the minimum increases relatively to the maximum faster in the southern hemisphere than in the northern one. And as this relative increase never changes sign, as the precipitation increases a time must come when the southern minimum will actually exceed the northern one in size and do so more and more, indefinitely.

Whence we find ourselves facing the interesting conclusion that with precipitation increased equally over the whole planet the size of the perpetual ice-cap at the southern pole would finally surpass that about the northern one. Whereas, then, with moderate precipitation the hemisphere with the extremes of summer and winter climate would have the less perpetual ice of the two; with more precipitation the result would be reversed.

21. On the earth this greater precipitation is made possible by the greater amount of water on the surface. Thus a glacial period might be produced with us under the very same conditions which would bar it on Mars. It would come about in consequence of the eccentricity of the orbit, but not chiefly because of that eccentricity. Rather, we may say, because of the amount of moisture capable of being manufactured. For were the moisture to fall below a definite amount, not only would no glacial period result no matter what the eccentricity, but actually a sort of anti-glacial epoch would be brought about by that very same cause.

Croll distinctly emphasizes the fact that it is the indirect not the direct effect of the eccentricity that causes a glacial period. This indirect effect he follows through increased precipitation to change of the winds and lastly to change of oceanic currents. What the present study of the problem appears to point out is that increased precipitation alone, from any cause whatever, is competent to the task.

22. Here, then, we have a remarkable reversal in arctic conditions from glacial to something not unakin to its opposite, due directly, not to change in eccentricity, though it presupposes eccentricity in the process, but to a greater or less abundance of water. And water plays a part in the performance of this act in each of its three forms—as gas, as liquid and as solid. As a gas, the lesser amount of it—for I believe it to be less in amount on Mars than with us, though relatively to the other two states of the substance greater—acts to keep the day-sky clear, the night-sky cloudy, and thus to foster the summer melting which results in a diminution of permanent ice. As a liquid, in which state it is certainly much scarcer

than with us, its relative absence causes a dearth of deposition which is the most important factor in establishing the conditions we have seen to exist. Lastly as a solid, the comparative lack of permanent ice-fields tends to keep the climate in a relatively genial condition and thus to allow the other two forms the greater play. Though the last seems but a passive partner, an acquiescer more than active accomplice, its *rôle* is not the least vital of the three. There is no doubt that the climate of our own arctic and antarctic regions is boreal to an extent far surpassing what mere absence of sun could cause. It is the storage of ice, the actual cold locked up in that substance in those polar prisons that is the true climatic controller of the extreme north and the extreme south.

23. From the mode of melting of the Martian polar caps, it is clear that we could have predicted a general dearth of bodies of water upon the planet from that evidence alone. We ought to have seen that so much was unmistakably written in the record open to our inspection. But other evidence presented itself first. So that we were already in possession of decisive testimony before the polar phenomena got a hearing.

Already we had come to the conclusion that what were formerly thought to be oceans, the-blue green markings, were not in reality seas, but vast tracts of field or forest. Many things testified to this; but not to weaken the argument by multiplying the proofs, it may suffice to say that permanent dark lines traverse them, and coincidentally traverse the idea that they can be seas. At the same time they change color with the season, as vegetation would do. As autumn advances they fade from green to gold, and with the spring grow green again. Our own forests could look no other viewed across the millions of miles of separating space.

Change implies air, and vegetal change water to boot. Thus there is some water on Mars, though there is not much.

24. After the phenomena of the maxima and minima of the caps, the next peculiarity connected with them is the eccentricing of the southern one. And this distinction is the more significant from its not being shared by the northern. The northern cap sits squarely upon its pole. The southern, on the other hand, is markedly eccentric to the axis of rotation. Its centre lies some seven degrees from the geographical pole over toward a point in about longitude 54° . Since then the two do not agree to differ, but are each idiosyncratic, it is clear that the cause cannot be one common to

both, but must consist in some peculiarity of the southern cap. Furthermore it must be some very general condition, for the eccentricity is not confined to any one era or stage in the existence of the cap. It is observable from the time the cap is at its widest to the supreme moment of its decay. Nor does it shift its place to any extent throughout the shrinking, till the cap's size becomes so small that a trifling preponderance here or there in longevity unduly expresses itself in longitude. Such constancy of position shows that the whole accumulation is eccentrically placed, and not simply that some part is so locally conditioned as to outlast its fellows.

25. To account for the phenomenon, analogy tempts us to jump to the conclusion that elevation is responsible for the survivorship. And so it has been thought to be by many who have philosophized on the subject. For this would be the fact on earth, and the same we are, therefore, prone to impute to Mars. But consideration shows that such cannot be the case.

Cold increases with ascent above sea-level because the enveloping blanket of air or rather of water vapor thins out as we rise. On the earth in latitude 45° an elevation of a couple of miles is usually enough to bring one into the region of perpetual snow. But on Mars this would not be the case. On Mars the cold could not increase thus with the speed it does on earth. It is possible to affirm this without any regard to the actual amount of atmosphere upon that planet. For it is a simple matter of physics with which we have to do.

26. The mere mass of a planet decides the distribution of its atmospheric envelope. It does this irrespective of what the amount of that envelope may be. No matter how dense or how rare the air be at the planet's surface, the air diminishes upward by a law which depends directly and primarily upon the planet's mass. This law is found as follows:

Since the density of the air varies primarily as the pressure put upon it, we have at the point, if D denotes the density, p the pressure and g the force of gravity

$$\frac{d p}{d x} = \frac{c}{D} \frac{d D}{d x} = - a p = a g D$$

whence

$$\frac{d D}{D} = a g d x$$

The minus sign denotes that x diminishes as D increases.
If we assume $a = 1$ we have

$$\frac{dD}{D} = -gdx$$

whence

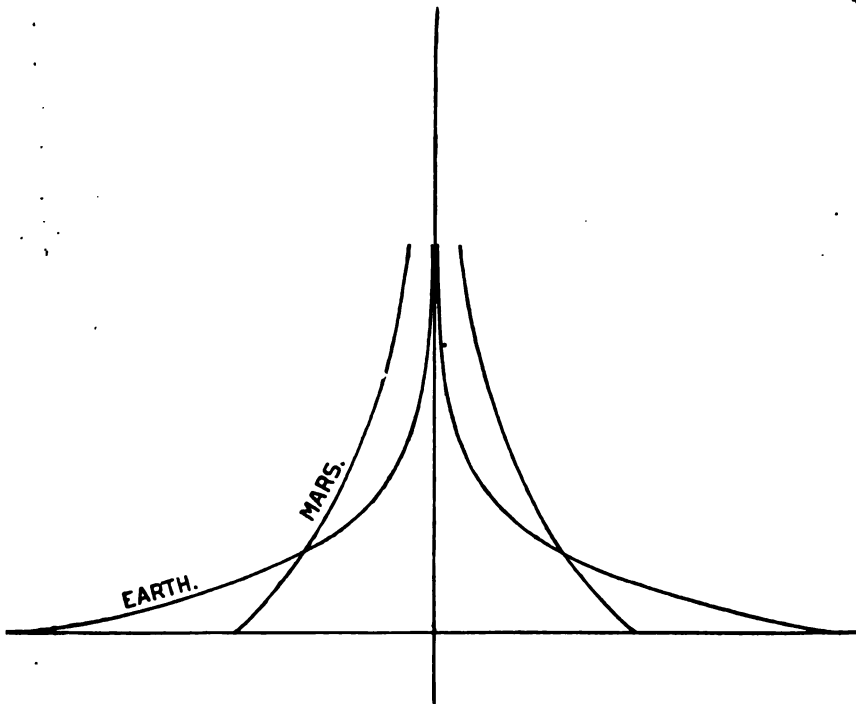
$$\int \frac{dD}{D} = \log D = -gx$$

or

$$D = e^{-gx}$$

For another planet we have in the same way

$$D = e^{-gx}$$



Curves showing variation in density of atmospheres on the Earth and on Mars.

Thus the height necessary to bring about the same relative amount of density upon two planets varies inversely as their respective surface gravity.

(I do not here consider temperature, which, according to some researches of my friend, Prof. Story, may possibly set superior limits to all planetary atmospheres.)

27. In consequence of this to compass a result for which a moderate ascent would suffice on earth, an immoderate one must be made on Mars. For gravity there being but $2\frac{2}{3}$ our own, nearly three times the rise is necessary. A Mt. Everest would stand for an Etna and something no less than eight miles high for a Mt. St. Elias. If such peaks existed, they could not fail of detection. Nevertheless none have been made out, nor are there any certain signs of even much lesser elevations. What have been most supposed to suggest them—the projections which, illuminated by slant lightning across the sunset or sunrise edge of the disk, stand out as bright points upon the terminator—do not tally with the look of hills, but are best explained by cloud. For they change in aspect only as clouds could contrive to do. Nor are other indications of possible mountains more expressive. Indeed, from every point of view Mars presents itself to us as futilely flat.

28. Dispensing, then, with earthly analogies we must look to Mars itself for explanation. Surveying the surface with this intent we presently note one trait which marks off the southern from the northern hemisphere—the relative absence in the latter of blue-green areas. It is, indeed, not a little odd how devoid the one-half of its globe is of what the other makes so fair a showing. The great mass of dark markings are to be found on that part of the planet which lies between the equator and the south pole.

29. Pursuing the subject, we find further that the blue-green regions are widest, reaching both farther down and higher up, between longitudes 300° and 90° . Here these regions stretch away to or fade into the arctic circle. Now it is in the centre of these longitudes, half way, roughly, across the breadth of the blue-green, that is found the centre of the southern snow-cap. Bowed toward this region, it evidently acknowledges some compelling potency there. And the continuance of the obeisance from the cap's beginning to its end points to a cause itself continuous.

30. The blue-green areas are, without doubt (see 23), vast vegetation bottoms. Though the dip is unquestionably but slight, it suffices to drain into them sub-ærially or surface-wise such moisture as may be present in the neighborhood. Whence their clothing of grass or forest or what does for these in Martian flora, their

like-tinted summer habiliment of green. Bottom-lands, not elevations then, are the cause of the snow's survival.

We are next concerned, therefore, with the way in which they may bring such result about. Just as it is not height but depth that determines the deposition, so it does this in quite unlike a manner. For by its indirect effects, more than by its direct efficiency, does it prove potent. Moisture in the air, it is true, flows into these lower levels because they are such, being hollows in the atmospheric ocean-bed. And they are such for water vapor over and above what they are for air, inasmuch as water vapor, though the lighter gas, is found most copious near the surface, thinning out more rapidly than the rest of the air upward. Depression is not so slight a factor as we proved elevation to be, because of this greater thinning out of moisture upward. But, even so, difference of level does directly but a part of the business. Indirectly depressions do something more: they start vegetation. Vegetation itself then takes a hand in the matter. Due to the humidity originally, once on the ground it reinforces the latter's action. For as a part of its life economy the plant is busied in pumping up water from the earth for the sake of the substances held there in solution which it absorbs, and setting the residue free allows it to evaporate away. Thus the moisture attracted to the spot is returned to the air about it, to be again deposited on provocation.

The deposit would not probably take the shape it does on earth. So thin, undoubtedly, is the air upon the surface of Mars that a precipitation in the form of rain or snow would seem not so likely a method of deposit as that other form dependent on contact which we know as dew or hoar-frost. In which case the deposit would occur nearer the place of generation, since it would offer less chance to be wafted to the winds. Being in a valley, the wind would get less sweep, and plant growth would still more hinder and hamper its course; and, secondly, what moisture was caught up and snatched away would be unlikely to be precipitated elsewhere. It would eventually return, to begin its plant work once more. Somewhere not far to the northward, then, of the general reservoirs of humidity, the great blue-green regions, we should expect to find the greatest accumulation of hoar-frost. This is precisely where we observe the centre of the snow-cap.

31. That the little midsummer remnant of the south polar cap lies at some distance from the pole, proves its survival due not to

the fortune of its position, but to its own self-preserving thickness. Of the northern snows, on the other hand, what is left over from year to year owes its conservation solely to latitude. Thus the survival of the little snow that is left at the southern pole, instead of proving the potency of the eccentricity, actually accentuates its impotence. Were it not for the presence of the lowlands with the increased moisture they gather and bequeath, there would be no eternal snow around the southern pole at all.

32. Thus this second characteristic of the polar patches, the centring of the one, the eccentricing of the other, corroborates and enforces the testimony borne by the maxima and minima. For it shows that the minima are in truth more accentuated than they appear to be. The little minimum at the south pole would vanish entirely every year, instead of sporadically, were it not for local causes.

33. Our survey of the Martian polar caps, then, leads us to some curious conclusions. It starts with apparent contradiction of Croll's theory, to end in final confirmation of it. It comes to curse and stays to bless. But it does more. It shows that eccentricity of orbit by itself not only causes no universal glaciation, but actually produces on occasion the opposite result in more than offsetting by summer proximity what winter distance brings about. Eccentricity needs water and a great store of it as handmaid before its glacial work can be accomplished. Could our earth but get rid of its oceans, we, too, might have temperate regions stretching to the poles.

Stated Meeting, December 7, 1900.

Vice-President WISTAR in the Chair.

Present, 13 members.

A communication was made by R. W. Shufeldt, M.D.,
"On the Osteology of the Striges."

The following annual reports were read :

The Treasurer.

The Curators.

The Publication Committee.

The Hall Committee.

The Library Committee.

The Phillips Prize Essay Committee.

The Librarian laid upon the table the list of donations to the Library, and thanks were ordered therefor.

The Society was then adjourned by the presiding officer.

ON THE OSTEOLOGY OF THE STRIGES.

[STRIGIDÆ AND BUBONIDÆ.]

(Plates X-XVII.)

BY R. W. SHUFELDT, M.D.

(Read December 7, 1900.)

INTRODUCTION.

Of all my published scientific papers, or in fact of any of my writings, the first to appear was a memoir devoted to the *Osteology of Speotyto cunicularia hypogæa* (Bull. U. S. Geol. and Geogr. Surv. of the Terr., Dept. of the Interior. Vol. vi, No. 1. Washington, 1881). This contribution to the anatomy of the Burrowing Owl was quite complete, and illustrated by many figures given principally upon three full-page lithographic plates. It was done, however, far from all civilization, the museums and the libraries, and therefore offered but few comparisons in its pages with the osteology of other species of Owls.

This paper underwent a partial revision at my hands and appeared again in my work entitled *Contributions to the Anatomy of Birds* (12th Ann. Rep. of the late U. S. Geol. and Geogr. Surv. of the Terr. [Hayden's]. Washington: Govt. Printing Office, Oct., 1882. Author's Edition). Some little improvement was made in the paper, but the same plates and figures were reproduced, and no general comparisons included in the research. In the present memoir a large number of osteological comparisons have been made, substantially based upon the facts brought out in the original and revised issues of the *Speotyto* article, and the characters found upon examination to present themselves in the skeletons of other American *Strigida*, specimens of which at this time are not lacking

in either my private collection or in the collections of the U. S. National Museum at Washington. All the figures, however, illustrating the early papers on the osteology of the Burrowing Owl have in the present memoir been omitted, it not having been thought necessary to republish them, as they can be consulted by any student of the subject in the above quoted publications. This does not, however, apply to the text matter of the original article, for it is taken up in the present work and incorporated in the general comparisons made throughout, wherein the osteological characters of all the American species of Owls have been contrasted and employed to meet the ends of taxonomy. Apart from a few brief notes, the anatomy of Owls was not touched by me again until 1889, when in the *Journal of Morphology* (Vol. iii, No. 1. pp. 115-125, Pl. vii) I contributed a paper on the Burrowing Owl, entitled *Notes on the Anatomy of the Speotyto cunicularia hypogæa*; but little was said in it about the osteology of the species.

Several years later I published in one place or another a number of papers treating of fossil birds, and in some of these descriptions of fossil bones of Owls are given, notably of a *Bubo* in my memoir on *A Study of the Fossil Avifauna of the Equus Beds of the Oregon Desert* (*Jour. Acad. Nat. Sci. Phila.*, Vol. ix, Pls. xv-xvii, 4to, Phila., Oct., 1892, pp. 389-425). Quite a number of popular papers were also published about the American species of the *Strigidae*, but nothing of a nature to be considered here. Indeed, up to the present writing I have published no paper requiring further notice in this place, beyond my memoir entitled *Professor Collett on the Morphology of the Cranium and the Auricular Openings in the North-European Species of the Family Strigidae* (*Jour. Morphology*, Vol. xvii, No. 1, Boston, 1900). This somewhat elaborate production, upward of one hundred printed pages, is illustrated by thirty lithographic figures of the skulls and plucked heads of Owls, and some seven or eight text figures of a similar character. A number of genera and species are thus shown, but none of those figures are reproduced here, for the same reason as the one given in a former paragraph of this Introduction.

The present memoir, however, claims to be a very general contribution to the study and comparison of the osteological characters presented on the part of the skeletons of all the North American species, or at least genera, of *Strigide*. The most of the text figures here offered have never been published by me heretofore, and the

same applies to the thirty figures given on the Plates. In fact, in the case of the latter no one of them has ever been given before in any memoir anywhere. For the first time now we have here the relations of the cranial segments at the base of the skull in the nestling *Bubo*; the internal view of the skull in the adult; the cranium of *Megascops* and skeleton of *Micropallas* figured, and a good many other specimens of the bones of Owls which have never been published before. It is believed that these will be found to be useful not only to the comparative osteologist, but to the researcher in the fields of avian palæontology. Further, it will be found that in the present memoir descriptions have been given and intercomparisons made of the osteological characters presented on the part of many of the species of the genera of *Strix*, *Asio*, *Surnium*, *Scotiapex*, *Nyctala*, *Megascops*, *Bubo*, *Nyctea*, *Surnia*, *Speotyto*, *Glaucidium* and *Micropallas*, the whole being completed with a brief discussion of the probable affinities of the *Strigidae* and their place as a group in the system.

WASHINGTON, D.C., November 21, 1900.

R. W. S.

Owls of a number of genera, represented by a variety of species, are to be found in the avifauna of the United States. That North American alucoline type of the Barn Owls, *Strix pratincola*, ranges throughout the southern and warmer parts of the country. The genus *Asio* is represented by two species, *Syrnium* by two and a subspecies, while far north *Scotiapex cinerea* and *Scotiapex c. lapponica* are occasionally found. Of the smaller Owls, *Nyctala* is represented by one species and a subspecies, the best known one being *N. acadica*, now becoming quite rare. Screech Owls of the genus *Megascops* are especially numerous and of wide geographical range, ornithologists having recognized at the present time two species of them and at least half a dozen subspecies, but some of the latter require an eye highly educated in the matter of the fine discrimination of shades of color to distinguish them.

Great Horned Owls of the genus *Bubo* have the well-known *Bubo virginianus*, of which there seem to be at least three fairly well-marked geographical races or subspecies—a Western one (*subarcticus*), one in the Fur Countries (*arcticus*), and a Northwest Coast region variety, which has also been taken in Labrador (*saturatus*). We also have the magnificent Snowy Owl (*Nyctea nyctea*), as well as two Hawk Owls (*Surnia*), and those other Owls, known as

"Burrowing Owls," of the genus *Speotyto*, of which there are two varieties. Finally, in the Western and Southwestern regions we meet with the highly interesting little Pygmy and Elf Owls—two of the genus *Glaucidium* and the still more diminutive Elf, *Micropallas whitneyi*.

The Striges constitute a very cosmopolitan group of birds, and a wonderfully monomorphic one, there being hardly an aberrant form in the entire suborder the world over. But even at the present writing the classification of these birds is in a condition anything but satisfactory, and in times not long gone by the nomenclature of Owls was something quite past comprehension and utterly confusing.

Presently I shall quote some authorities in these matters when I come to say a few words upon the Owls in general, but right here, be it said, that beyond that the present memoir will have but little to do with the unraveling of this perplexing taxonomy and nomenclature. For the purpose of designating species and genera, I here adopt the arrangement set forth in the Check List of the American Ornithologists' Union—the last edition. Huxley, in his celebrated paper, published in the *Proceedings* of the Zoölogical Society of London in 1867, says that his *Actomorphæ* is a division which is equivalent

"to the 'Raptores' of Cuvier—an eminently natural assemblage, and yet one the members of which, as the preceding enumeration of their characters shows, vary in most important particulars.

"They appear to me to fall naturally into four well-defined primary groups—the *Strigidae*, the *Cathartidae*, the *Gypatidae* and the *Gypogeranidae*. But this arrangement is so different from that ordinarily adopted, that I shall proceed to justify it by enumerating the principal circumstances in which the members of the several divisions agree with one another and differ from the rest."

This is first followed by a fairly complete *résumé* of the osteological and other characters of the Owls, but as many important skeletal characters have, since that paper was published, been described by ornithotomists, we will omit here Prof. Huxley's synopsis in these matters, and present the fuller and more recent remarks of Prof. Newton and others in the premises.

In his admirable article "Ornithology" in the Ninth Edition of the *Encyclopædia Britannica* (v. xviii, p. 47), Prof. Newton says that "It has so long been the custom to place the Owls next to the diurnal Birds-of-Prey that any attempt to remove them from that position cannot

fail to incur criticism. Yet when we disregard their carnivorous habits and certain modifications which may possibly be thereby induced, we find almost nothing of value to indicate relationship between them. That the *Striges* stand quite independently of the *Accipitres* as above limited can hardly be doubted, and, while the *Psittaci* or Parrots would on some grounds appear to be the nearest allies of the *Accipitres*, the nearest relations of the Owls must be looked for in the multifarious group *Picariæ*. Here we have the singular *Steolornis*, which, long confounded with the *Caprimulgidæ*, has at last been recognized as an independent form, and one cannot but think that it has branched off from a common ancestor with the Owls."

And the same excellent authority in the volume just quoted, under the article "Owl" further says, on page 89, that

"The Owls form a very natural assemblage, and one about the limits of which no doubt has for a long time existed. Placed by nearly all systematists for many years as a Family of the Order *Accipitres* (or whatever may have been the equivalent term used by the particular taxonomers), there has been of late a disposition to regard them as forming a group of higher rank. On many accounts it is plain that they differ from the ordinary diurnal Birds-of-Prey, more than the latter do among themselves; and, though in some respects Owls have a superficial likeness to the *Goatsuckers*, and a resemblance more deeply seated to the *Guacharo*, even the last has not been made out to have any strong affinity to them.¹

"A good deal is therefore to be said for the opinion which would regard the Owls as forming an independent Order, or at any rate Suborder, *Striges*. Whatever be the position assigned to the group, its subdivision has always been a fruitful matter of discussion, owing to the great resemblance obtaining among all its members, and the existence of safe characters for its division has only lately been at all generally recognized.

"By the older naturalists, it is true, Owls were divided, as was first done by Willughby, into two sections—one in which all the species exhibit tufts of feathers on the head, the so-called 'ears' or 'horns,' and the second in which the head is not tufted. The artificial and therefore untrustworthy nature of this distinction was shown by Isidore Geoffrey St. Hilaire (*Ann. Sc. Naturelles*, xxi, pp. 194-203) in 1830; but he did not do much good in the arrangement of the Owls which he then proposed; and it was hardly until the publication ten years later of Nitzsch's *Pterylographie* that rational grounds on which to base a divis-

¹ This last remark rather borders upon inconsistency when strictly taken with what this writer has said in his article "Ornithology" quoted in a former paragraph above.

ion of the Owls were adduced. It then became manifest that two very distinct types of pterylosis existed in the group, and further it appeared that certain differences, already partly shown by Berthold (*Beitr. zur Anatomie*, pp. 166, 167), of sternal structure coincided with the pterytological distinctions. By degrees other significant differences were pointed out, till, as summed up by Prof. Alphonse Milne-Edwards (*Ois. foss. de la France*, ii, pp. 474-492), there could no longer be any doubt that the bird known in England as the Screech Owl or Barn Owl, with its allies, formed a section which should be most justifiably separated from all the others of the group then known.

"Space is here wanting to state particularly the pterytological distinctions which will be found described at length in Nitzsch's classical work (*English Translation*, pp. 70, 71), and even the chief osteological distinctions must be only briefly mentioned. These consist in the Screech Owl section wanting any manubrial process in front of the sternum, which has its broad keel joined to the clavicles united as a furcula, while posteriorly it presents an unbroken outline.

"In the other section, of which the bird known in England as the Tawny or Brown Owl is the type, there is a manubrial process; the furcula, far from being joined to the keel of the sternum, often consists but of two stylets which do not even meet one another; and the posterior margin of the sternum presents two pairs of projections, one pair on each side, with corresponding fissures between them. Furthermore, the Owls of the same section show another peculiarity in the bone usually called the tarsus. This is a bony ring or loop bridging the channel in which lies the common extensor tendon of the toes—which does not appear in the Screech Owl section any more than in the majority of birds. The subsequent examination by M. Milne-Edwards (*Nouv. Arch. du Muséum*, ser. 2, i, pp. 185-200) of the skeleton of an Owl known as *Phodilus* (more correctly *Photodilus*) *badius*, hitherto attached to the Screech Owl section, shows that, though in most of its osteological characters it must be referred to the Tawny Owl section, in several of the particulars mentioned above it resembles the Screech Owls, and therefore we are bound to deem it a connecting link between them. The pterytological characters of *Photodilus* seem not to have been investigated, but it is found to want the singular bony tarsal loop as well as the manubrial process, while its clavicles are not united into a furcula and do not meet the keel, and the posterior margin of the sternum has processes and fissures like those of the Tawny Owl section. *Photodilus* having thus to be removed from the Screech Owl section, Prof. Milne-Edwards has been able to replace it by a new form *Heliodilus* from Madagascar, described at length by him in M. Grandidier's great work on the natural history of that island (*Oiseaux*, i, pp. 113-118). The unexpected results thus obtained preach caution in regard to

the classification of other Owls, and add to the misgivings that every honest ornithologist must feel as to former attempts to methodize the whole group—misgivings that had already arisen from the great diversity of opinion displayed by previous classifiers, no two of whom seem able to agree.

"Moreover, the difficulties which beset the study of the Owls are not limited to their respective relations, but extend to their scientific terminology, which has long been in a state so bewildering that nothing but the strictest adherence to the very letter of the laws of nomenclature, which are approved in principle by all but an insignificant number of naturalists, can clear up the confusion into which the matter has been thrown by heedless or ignorant writers—some of those who are in general most careful to avoid error being not wholly free from blame in this respect."

Did my space but admit of it, I would here republish even still more of this admirable article of Prof. Newton's, as in my opinion it constitutes one of the most able short contributions that has ever been added to the literature of this subject.

Upon consulting the Plates and text of so distinguished an authority's work as Prof. Max Fürbringer's *Untersuchungen zur Morphologie und Systematik der Vögel*, we are to note that there the *Caprimulgi* and *Striges* are considered as arising from a common ancestral stock, the suborder *Coraciiformes* of the Order *Coracornithes*, and this last-named division is quite apart from the Order *Pelargonithes*, which contains the *Accipitres*. This is the view which is held by the present writer, and in so far as our United States Owls are concerned I consider the suborder *Striges* is represented by the two families—(1) the *Strigidae*, containing the single genus and species, *Strix pratincola*, and (2) the *Bubonidae*, which holds all the others—some eleven genera with the many species enumerated above.

Mr. F. E. Beddard, in a very excellent little paper published not long ago in *The Ibis*, says upon this point that

"the most obvious characters which distinguish the skull of *Strix* from that of the remaining genera have been pointed out by Milne-Edwards;¹ they are, firstly, the greatly elongated and narrow form of the skull in *Strix* contrasted with the wide short skull of other types; secondly, the relatively great thickness of the bones which make up the interorbital septum in *Strix* as compared with the extremely thin interorbital septum of other Owls.

¹ *Nouv. Arch.*, etc., p. 189.

"I find by a series of measurements of the skulls of the following types—

<i>Strix flammea</i>	<i>Bubo bengalensis</i>
<i>Strix</i> sp?	<i>Syrnium indrani</i>
<i>Asio mexicanus</i>	<i>Syrnium woodfordi</i>
<i>Speotyto cunicularia</i>	<i>Ketupa javanica</i>
<i>Athene noctua</i>	<i>Sceloglaux albifacies</i>
<i>Bubo maximus</i>	<i>Nyctea nivea</i>

that while *Strix* has the narrowest skull (the proportion of the greatest breadth to length being in *Strix* sp. inc. as 37.5: 62, in *Strix flammea* 36: 56), the other genera show a progressive widening of the skull; this culminates in *Speotyto cunicularia*, where the breadth is to the length as 37: 38. I do not give the exact measurements in the other species mentioned in the present list, for the reason that such a table of measurements would only be of value if it embraced the results of a study of a larger number of species and of individuals. I may state, however, that I have examined a large number of Owls' skulls in the British Museum Collection, including those of two other species of *Strix* (viz., *S. perlata* and *S. delicatula*), and in no case do I find so long and narrow a skull as in the genus *Strix*. It may be worth while mentioning that *Sceloglaux albifacies* has a skull which comes nearer to that of *Strix* in its relative proportions than do the skulls of many other genera. The reason which leads me to lay some stress upon this fact is the opinion of Prof. Newton¹ that this curious Owl may prove to be intermediate between the *Strigida* and other Owls. I hope, however, to be able, at some future time, to compare the skeleton of *Sceloglaux* with that of *Strix*.

"Prof. Milne-Edwards, in his memoir upon *Photodilus*, shows plainly that this genus belongs to the Bubonine and not to the Strigine group in the proportions of the skull and in the possession of a flattened interorbital septum.

"There is one feature in the skull of the Striges, serving to distinguish the *Strigida* from the *Bubonida*, which has apparently escaped the attention of Prof. Milne-Edwards. In *Strix*² the prefrontal processes of the ethmoid are rounded and much swollen. In *Bubo* and in all other genera of Owls which I have had the opportunity of studying the same processes are thin, leaf-like expansions, as they are in the *Accipitres diurnæ*. With regard to the other points of difference in the skull, I must refer the reader to Prof. Milne-Edwards' memoir." . . .

¹ *Encycl. Brit.*, art. "Owl."

² Mr. Beddard gives very excellent figures in this paper of the basal views of the skulls of *Strix flammea* and *Bubo bengalensis*, but I have not reproduced these, and the reader can find the points referred to in other figures illustrating the present memoir and two views of the skull of *Strix* in the Plates.

Of the bones of the foot, Mr. Beddard also says that

"a comparison of the relative length of the phalanges of the third digit appears to afford another character for the discrimination of the *Striginae* and *Buboninae*.

"In *Strix* (Fig. 1) the first phalanx of that digit is markedly shorter than the second phalanx. In *Bubo* (Fig. 2) and in the other genera the two phalanges in question are subequal."

According to Beddard, in the paper we have been quoting,

"the principal osteological characters of the genus *Strix*, and which apparently distinguish it from all others, are the following:

- (1) The skull is relatively long and narrow.
- (2) The palatines are straight, nearly parallel to each other; they are of approximately the same width throughout; they almost conceal the underlying maxillo-palatines, which are broader from above downward than from side to side.
- (3) The prefrontal processes of the ethmoid are rounded bones of some width.
- (4) The interorbital region of the skull does not form a thin plate anteriorly, but is of considerable width from side to side.
- (5) The sternum has but one notch on either side.
- (6) In the foot the second joint of the third toe is considerably longer than the basal joint.
- (7) There is no bony ridge upon the tarso-metatarsus.

"On the other hand, in the *Bubonidæ* the skeleton has the following characters:

- (1) The skull is relatively broad and short.
- (2) The palatines are curved, the hinder part of the bone being much wider than the anterior region; the maxillo-palatines are very broad from side to side.
- (3) The prefrontal process of the ethmoid is a thin plate.¹
- (4) The interorbital plate is thin and often fenestrated.
- (5) The sternum has two notches on either side.
- (6) In the foot the second joint of the third digit is subequal in size to the basal joint.
- (7) There is a bony ridge upon the under surface of the upper end of the tarso-metatarsus."

¹ In *Athene noctua* and *Speotyto cunicularia* these processes are very small and are hidden by the palatines when the skull is viewed from the ventral surface. The skull is broader in these two genera than in any others examined by me, and the maxillo-palatines are smaller.

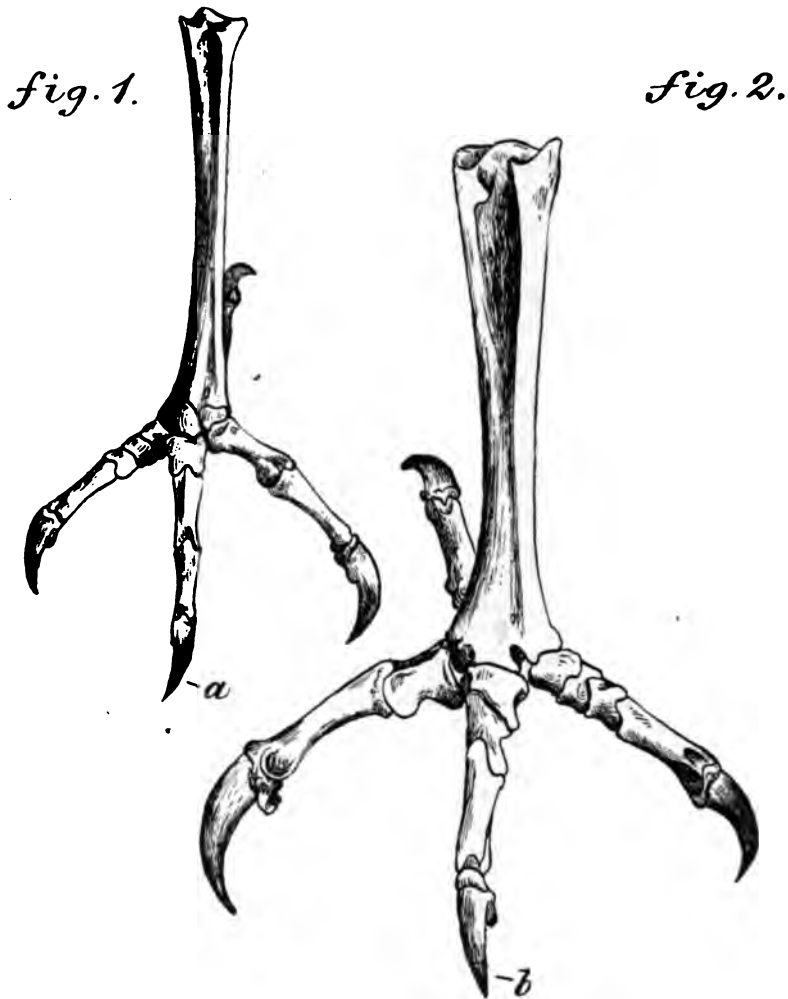


Fig. 1. Right foot of *Strix flammea* (nat. size). Fig. 2. Left foot of *Bubo bengalensis* (nat. size).

Both figures are sketches by the author from Beddard's figures, and the one of *B. bengalensis* will answer very well for any representative of that genus, as *B. virginianus*. *a* and *b* direct attention to the third digit where the subequality of the basal phalanges is seen.

Mr. Beddard found these differences supported in the two Strigine families in question by the dissimilarities that were exhibited on the part of the *tensores patagii* and the *syringes*. He presents very good figures of these last-mentioned structures as they occur in *Strix flammea*, *Bubo maculosus* and *Scops leucotis*.

Upon examining a skeleton (No. 18196) of our own American Barn Owl (*Strix pratincola*) in the collections of the United States National Museum, as well as the trunk skeleton of one in my private cabinets, I find that there are a number of good characters, referable to the osseous system of this bird, which are not noted by Mr. Beddard in the list of characters I have quoted from him above (see Pl. XIV, Fig. 21, and Pl. XV, Figs. 24 and 25). And as these characters are quite distinctive when we come to compare the skeleton of this Owl with a skeleton of any of the typical *Bubonide*, I will enumerate them here:

- (1) The vomer is notably large in *Strix pratincola*.
- (2) And in it, comparatively, the lacrymal is a very large bone and has considerable antero-posterior length.
- (3) The manubrium on the sternum is aborted.
- (4) The mid-lower point of the os furcula makes a pseudo-articulation with the anterior carinal angle of the sternum. It has been said that in very old Owls of this species ankylosis may take place at this point.
- (5) The antero-lateral angles of the ilia are produced forward as prominent processes.
- (6) An os prominens is not developed at the distal end of the radius.
- (7) The head or proximal end of the tarso-metatarsus is twice perforated in the antero-posterior direction.
- (8) Two vacuities are seen in the expanded portion of the proximal phalanx of the index digit.

This last-mentioned character reminds one of what we likewise find in some of the American *Caprimulgi*.

Agreeing with other Owls, we find in *Strix pratincola* nineteen free vertebræ between skull and pelvis, and eight in the skeleton of the tail, which count includes the pygostyle.

In the arrangement of the ribs we find them to vary; a specimen of *Stix pratincola* before me has a tiny pair of free ribs on the thirteenth vertebræ; they are larger on the fourteenth; while on the fifteenth the rib does not join with the sternum on the left side, but

does so by a costal rib on the right. None of the ribs thus far mentioned bear epipleural appendages. Now, in a specimen of *Asio wilsonianus*, the first pair of tiny free ribs occur upon the twelfth cervical vertebra; the next pair are considerably larger, while those on the fourteenth have epipleural appendages, and both connect with the sternum.

Strix pratincola also often has a pair of "floating ribs" behind the last dorsal pair. In this Owl, too, we find a very large patella. All Owls have a notably long fibula, while in *Strix* it is quite perfect and comes down very close to the condyle of the tibio-tarsus. The relative lengths of the bones of the lower extremity are rather remarkable in *Strix pratincola*. In a mounted skeleton (18196) in the cases of the United States National Museum of this species, I find the femur to measure 6.5 centimetres, the tibio-tarsus 11 centimetres, and the tarso-metatarsus 7.9 centimetres.

As is now well known, a variety of species of Owls have asymmetrical skulls, an asymmetry that is due largely to a distortion of the postfrontal and squamosal regions of the cranium. It may occur, I believe, upon either side. *Bubo virginianus*, however, presents us with no such character in its skull, and this Owl possesses a lofty superior osseous mandible, with the nasal septum completed in bone, all to a small space behind. In it, as in most Owls, the lower part of the great spongy lacrymal is moulded upon the still larger maxillo-palatine beneath; the last also being a tuberos, spongy mass, of a form something like a small chestnut, with the bulbous end to the rear. These maxillo-palatines do not meet each other mesially, and they rest, on either side, upon the horizontal prepalatine blade of the palatine bone (see Plate XII, Fig. 10).

In the lacrymal region a large foramen exists externally, the walls of which are formed chiefly by the lacrymal, the nasal and the maxillo-palatine. It passes into the rhinal chamber. As Mr. Beddard has already pointed out, the pars plana in all of the Bubonidine type of Owls is comparatively small and of a thin, plate-like structure. It is quite small in *Bubo virginianus*, and in all of the Owls wherein it exists, as we have just described it, it is so turned as to form a partial rest for the eye anteriorly, rather than an osseous partition between orbit and rhinal space beyond.

A very small vacuity may exist in the interorbital septum in *Bubo* and some strigine forms related to that genus, but it is of by no means a common occurrence.

All of the Owls I have ever examined possess basipterygoid processes, and I have often wondered what species of these birds Sir Richard Owen referred to when he wrote that they were absent in Owls (see *Anat. Verts.*, Vol. ii., p. 49).

On the superior aspect of the skull, such Owls as *Bubo* are narrow in the frontal region between the margins of the orbits, and the fronto-orbital processes are short and stumpy.

Another thing to be noticed in these large Owls is the prominent manner in which the frontal region of the skull overreaches the naso-premaxillary region in front of it. The frontal bones really bulge forward here, creating a very striking feature, totally absent in such a species as *Strix pratincola*, and only moderately well developed in some other Owls. The Owl's skull that shows it the best of all the specimens before me is one from *Bubo maximus*, a Japanese species, but it is by no means slightly marked in our own *Bubo virginianus* (see Fig. 4).

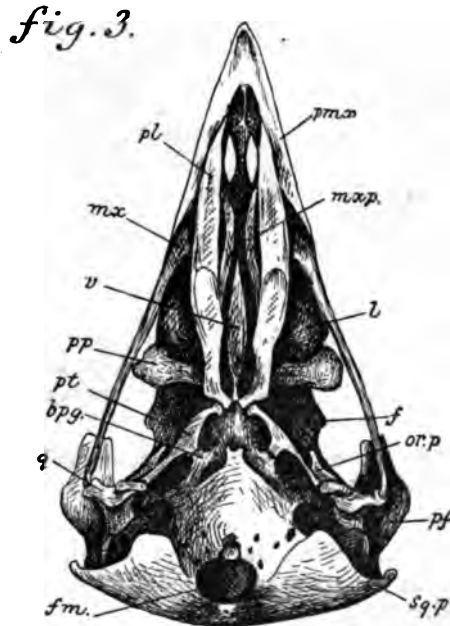


FIG. 3. Basal view of the skull of *Strix pratincola* (No. 18196, U. S. Nat. Museum). Adult; life-size.

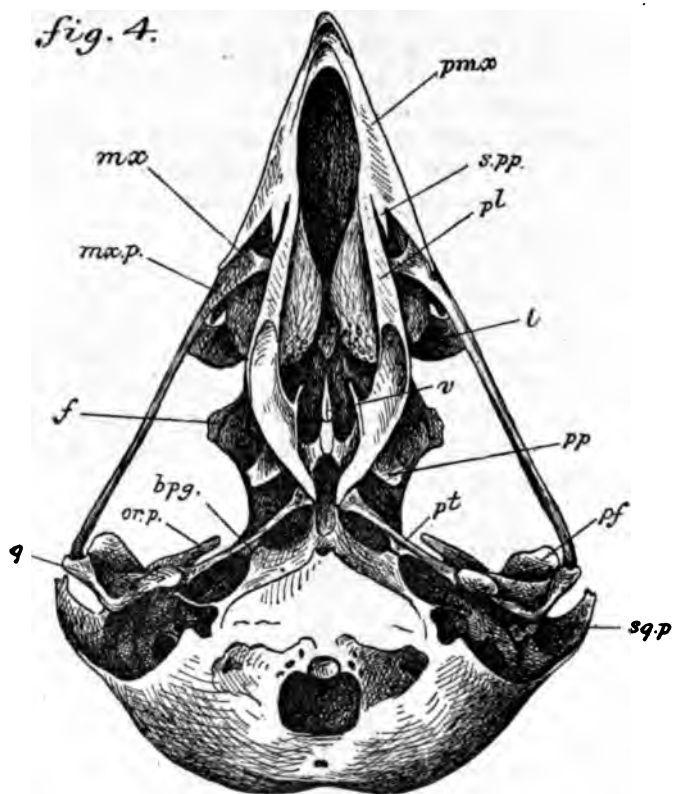


FIG. 4. Basal view of the skull of *Bubo maximus* (Japan) (No. 18227, U. S. Nat. Museum). *pmx.*, premaxillary; *mx.*, maxillary; *pl.*, palatine; *mx. p.*, maxillo-palatine; *s. pp.*, secondary palatine process; *l.*, lacrymal; *f.*, frontal; *v.*, vomer; *p. p.* pars plana; *pt.*, pterygoid; *b. pg.*, basipterygoid process; *pf.*, post-frontal; *sq. p.*, squamosal process; *q.*, quadrate; *or. p.*, orbital process of quadrate; *fm.*, foramen magnum.

Turning to the mandible of this last-mentioned species, we find it to be of a broad V-shaped pattern, with rather a shallow symphysis; truncate angular ends, with large inturned processes there; moderately high ramal sides, and always exhibiting a long, irregularly-shaped ramal vacuity near the middle of the same. This ramal vacuity is small in *Strix pratincola*.

Passing to the trunk skeleton and the skeleton of the limbs, we have but little to add to what has already been pointed out in the foregoing paragraphs of this memoir. With respect to the pelvis,

it calls to one's mind the skeleton of many of the diurnal *Raptores*, more than any other single part in the osseous framework of the Owls is wont to do. Some of the *Accipitres*, however, possess interrupted post-pubic elements; I have never observed this to be the case in any American Owl. But aside from this character, the general facies of the pelvis, say of such a species as *Syrnium nebulosum*, or many others, reminds us very much indeed of the pelvis in certain species of Hawks.

This does not as a rule apply especially to the sternum, nor yet to the shoulder-girdle. As we have already shown, the sternum in all of the *Bubonidae* is strongly two-notched upon either side behind.

The outside pair of notches are usually very deep in representatives of the genus *Syrnium*.

Returning to *Bubo virginianus*, we see that in the skeleton of the arm the humerus is the only pneumatic bone, and the long slender radius is interesting from the fact that it has the os promiens articulated with its distal extremity, and a peculiar little osseous arch is found upon the side of its shaft at the proximal third of its continuity (see Fig. 5, *os. p.* and *oa.*).

The ulna is about three times the calibre of the radius, with the distal moiety of its shaft nearly straight, while the proximal half is gently arched. Bones of manus are all well-developed, but withal present us with no very striking characters. The differences seen in the expanded part of the proximal phalanx of index digit, respecting *Strix* and *Bubo*, have already been pointed out above.

In the *pelvic limb* we find all the bones nonpneumatic, and the points of interest to be the great length of the fibula and the peculiar form assumed by the tarso-metatarsus.

The characters of the joints of the toes have already been commented upon above. With respect to the tarso-metatarsus, we again meet with a bone that agrees in some of its features with the corresponding part of the skeleton among some of the *Accipitres*. The hypotarsus is single, prominent and placed to the inner side of the shaft. Deeply and longitudinally excavated adown the entire posterior aspect of its shaft, it is only partially so in front, and that for the proximal half of the bone. A bony bridgelet spans the latter excavation just below the head of the bone and to its inner aspect. This is also seen in *Pandion* among the diurnal *Raptores*; and in that form, too, we note a very perfect fibula—that is, for an ornithic type. Some other Hawks are not backward in that particular.

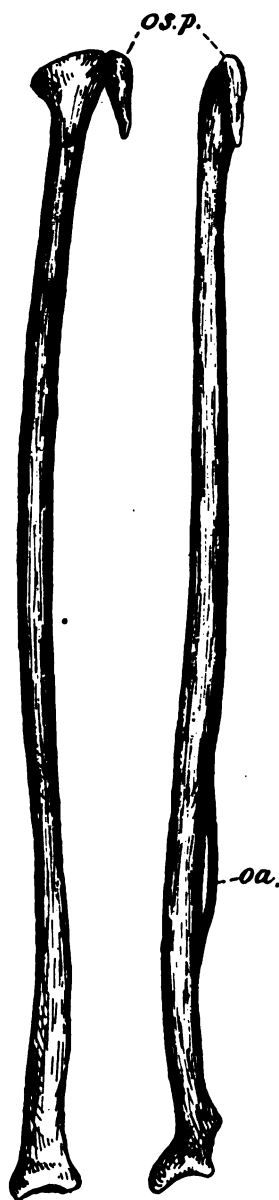


FIG. 5. Radius of an adult specimen of *Bubo virginianus*; drawn life-size. The bone on the left-hand side is seen upon superior aspect; the one on the right, upon anconal view. *os. p.*, os prominens; *oa.*, osseous arch.

The femur in *Strix pratincola* appears to be pneumatic. All Owls appear to be supplied with a large patella at the knee.

I shall now proceed to give a few selected extracts from my memoir on *Speotyto cunicularia hypogaea*, as I said I would do in the Introduction to the present memoir. A superficial examination of a skeleton of *Speotyto* is quite sufficient to convince us that its affinities are with the bubonine Owls rather than with the genus *Strix*. We will not then have to especially dwell upon this point.

Essentially, the characters of the skull and mandible of *Speotyto* are briefly as follows:

Owing to its delicate structure, it is a skull of extreme lightness; and as to form, its greatest width lacks but little of its being equal to its median longitudinal diameter. Vertically it is of moderate height, while the cranial vault externally is markedly smooth and rounded in the parietal and adjacent regions. The septum marium is complete, the external osseous nostrils being somewhat rounded ellipses in outline. Either lacrymal bone is free, and grooved upon its outer aspect for the lacrymal duct. Superiorly, we are to note in the frontal region that the skull is inclined to be narrow between the upper orbital margins; and the supraorbital processes, thrown outward and backward on either side by a frontal, are of spiculaform proportions. The thin interorbital plate or partition may, and usually does, show one small central vacuity in it. The nerve foramina are small and generally round in outline. Pars plana is meagrely developed, and presents the characters of the bubonine Owls generally. A quadrato-jugal bar is stout, and is peculiar in that upon its superior aspect, at the junction of middle and posterior thirds, it sends upward a transversely compressed triangular process, that also exists as a character in the skulls of *Surnia* and the Pygmy Owls among American species now at my hand. Postfrontal processes are broad and conspicuous, while a squamosal bone forms a great shell-like bulla that arches forward as a shield to the external auditory aperture. The antero-superior angle of this bulla, upon either side, fuses with the edge of the postfrontal at the orbital periphery, thus creating a small foramen there, which in the living bird transmits the tendon of the temporal muscle. The skull of *Speotyto* is symmetrical. Above the foramen magnum a well-marked supraoccipital eminence is seen, which is pierced mesially by a small and usually circular vacuity.

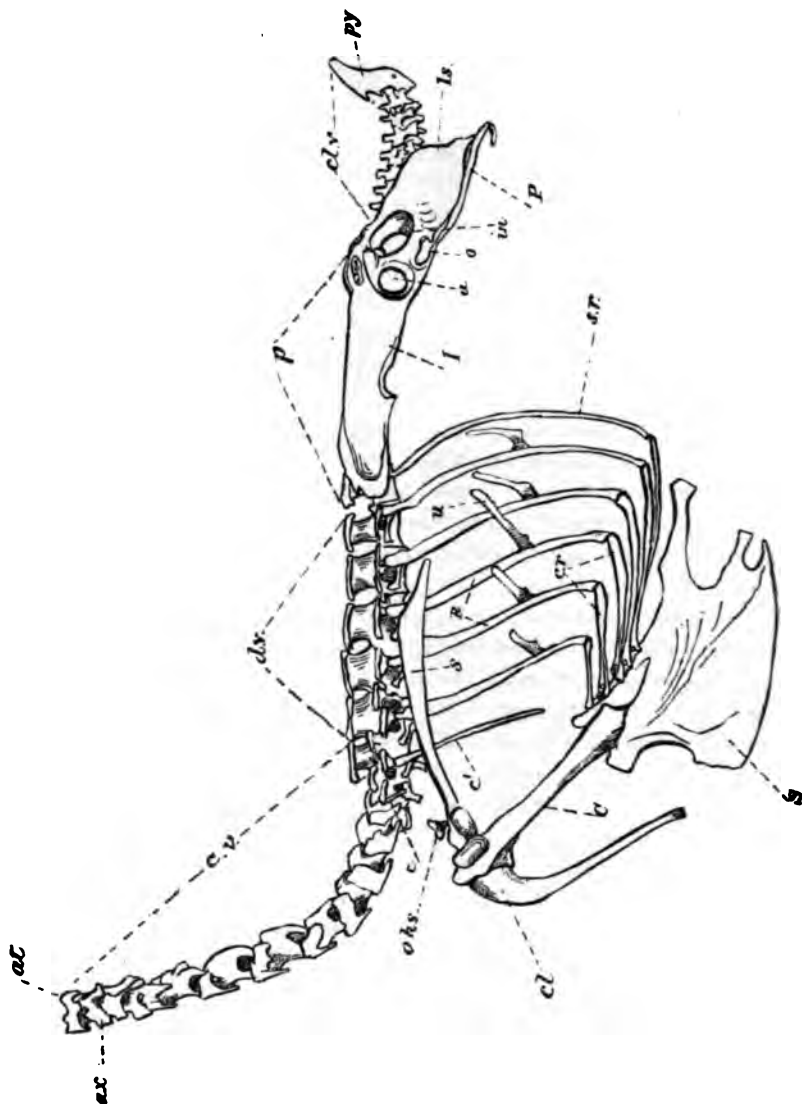


FIG. 6. Trunk skeleton, without the skull, of *Asio wilsonianus*. Adult; life-size. *at.*, atlas; *ax.*, axis; *cv.*, cervical vertebrae; *c*, *c'*, cervical ribs; *dv.*, dorsal vertebrae; *R*, two of the dorsal series of ribs; *s. r.*, sacral rib; *u.*, the unciform or epipleural appendage of the third dorsal rib; *c. r.*, costal or sternal ribs (hæmapophyses); *p.*, pelvis; *l.*, ilium; *ls.*, ischium; *P.*, pubis; *a.*, acetabulum; *in.*, ischio-iliac foramen; *o.*, obdurator foramen; *clv.*, caudal vertebrae; *py.*, pygostyle; *s.*, scapula; *ohs.*, os humero-scapulare; *cl*, clavicle; *C.*, coracoid; *S.*, sternum. (This figure is a lettered scheme to Fig. 30, Plate XVII.)

As in almost all Owls, the mastoidal part of the quadrate is notably long; and the well-developed basipterygoid processes are present for articulation with the pterygoids. Palatines are not very wide, and they are inclined to be bowed outward along their lengths. Maxillo-palatines, too, are comparatively small and well separated from each other in the median line. They are of the same spongy structure that we see in the *Striges* generally. I am inclined to think that the vomer never ossifies in *Speotyto*, and, as we know, it is very small in a number of other Owls.

This little Burrowing Owl possesses a mandible of a form common to most of its family. A large ramal vacuity is always present in it upon either side, and the bone is pneumatic.

Speotyto has its orbits of comparatively large size, and the sclerotal plates of the eye itself are strong and ample.

The hyoid arches are suspended from the base of the skull by their usual attachments. In this Owl they consist of six separate little bones, involving five articulations. The tips of the upturned posterior extremities are about opposite the lower borders of the temporal fossæ, its two limbs diverging from each other at an angle equal to that made by the lower mandible. The ceratohyals are rather large in comparison with other bones. They are joined both anteriorly and posteriorly by bony bridges, forming a fenestra between them to be filled in by a thin membrane. The amount of divergence they make from each other is less than that made by the epibranchial elements of the thyrohyals. Anteriorly the bone connecting them supports a cartilaginous glossohyal, while the posterior connection presents for examination the usual smooth articulating surface that enters into the arthrodial joint it makes with the basibranchial. The first basibranchial and second basibranchial are confluent, not a sign of the point of union remaining. The latter bone is continued a short distance posteriorly by a tip of cartilage. The anterior end of the first basibranchial is devoted to the articular surface for the bone connecting the ceratohyals, forming the joint mentioned above. It is concave from above downward, convex from side to side, the lower lip being the longer. It will be plainly seen that this combination grants to the tongue a movement in the vertical and horizontal planes. The anterior articulating heads of the epibranchial elements of the thyrohyals are opposite each other, each being received into the diminutive acetabulum intended for it at the side of the united first and second

basibranchials, and most probably at the junction of the two latter bones. These two elements are long bones having a cylindrical shaft, terminating at either end in an articulating head. They are the longest bones in the hyoidean apparatus, and have a gentle curvature upward throughout their extent. The inner heads form an arthrodial joint on either side with the outer heads of the ceratobranchial elements of the thyrohyals. These, the last bones of the arch, are joined in the manner already shown above. Their inner ends are quite pointed, even as far as the bone goes, the extreme points being finished off with cartilage. They curve upward from about their middle thirds, and, like the first elements of the thyrohyals, they are long bones, but with curved cylindrical shafts, the outer end, however, being the only true articulating one.

The Spinal Column: Cervical Portion.—There are in *Speotyto* fourteen cervical vertebræ, each one having a more or less free movement with the one beyond and behind it, the chain maintaining in all positions some variation of the usual sigmoid curve observable in this division of the vertebral column throughout the class. The arrangement, as well as the direction, of the planes of the zygapophysial articular surfaces allow considerable rotary movement and bending in the vertical plane, with combinations of the two. It is a common habit of this bird, among other of his antics, to duck his head smartly downward and again upward, several times in succession, upon being approached. The calibre, as well as shape, of the neural canal in this portion of the spinal column varies at different points. It originates at the atlas as a transverse ellipse, with a major axis of four millimetres and a minor axis of a little less than three millimetres; this is about the maximum capacity throughout the entire canal. From the atlas to the sixth or seventh vertebra the ellipse gradually approaches the circle, with a marked diminution in size, its diameter being at the seventh about two millimetres in any direction. From this point to the twelfth, inclusive, it rises as it fell from the atlas, and in the same manner, when we again discover a transverse ellipse, perhaps a jot smaller than the one described in speaking of the atlas. In the thirteenth the canal is smaller than, though in all other respects it resembles, the twelfth; but an abrupt change takes place in shape as we pass to the fourteenth or last cervical, where the form of the neural tube suddenly approximates the circularity of the dorsal vertebræ. The vertebral canal begins, circular, on either side at the

third cervical vertebra, most of its length being immediately beneath the prezygapophyses of each segment. It is formed in the usual manner by the di- and parapophysial processes uniting laterally with the pleurapophysial elements. Small at the cephalic extremity of the column, its calibre gradually increases in each vertebra as we proceed toward the thoracic extremity, until it attains its maximum capacity at the eleventh vertebra. In the twelfth the integrity of its walls is lost by a parting of the par- and pleurapophysial elements, with a disappearance of the former, leaving it no floor, so that in this vertebra it ceases to be a closed canal. The most prominent object presenting itself for examination in the atlas, superiorly, is the deep reniform cavity for articulation with the occipital condyle of the basi-cranii. Below and posteriorly there is another articulating surface, convex for the centrum of the axis and concave for its odontoid process, accurately meeting the opposed surface of this vertebra and forming the atlo-axoid articulation. A lip of bone, a portion of the hypapophysis of the vertebra we are now describing, projects downward and shields this joint in front, overlapping indeed a good part of the axis. The neurapophyses of the atlas are slight in structure. The concave postzygapophyses articulate with the convex prezygapophyses of the axis. The bone is devoid of a neural spine. In the axis we find both an hypapophysis and neural spine developed, the former being produced from the ridge on the anterior aspect of the centrum of the bone. The odontoid process arises vertically from the posterior margin of the upper surface of the centrum. Its summit and anterior face are convex and articulating, while behind it is flat and continuous with the spinal canal. The facet for articulation with the centrum of the third vertebra looks downward and inward, is convex from side to side and concave in the opposite direction. The postzygapophyses are concave, look downward and outward, the conditions in the prezygapophyses being exactly the opposite; this is the rule throughout the cervical portion of the column. After we pass the atlas and axis, we find in the third cervical vertebra here, as in most vertebrates, parts that are common to the series of this portion of the column, deviating but slightly from each other as we examine them *in serialim*; but gradually as this deviation proceeds some requisite condition is brought about when the climax is attained. The fact of the presence of a neural spine on the axis is

conveyed, though in a less marked degree, to the third or next vertebra below, where it occupies a position about the middle of the bone. As we pass toward the dorsal region this process becomes less and less prominent, being found set farther back on each successive vertebra; it disappears about entirely at the tenth, after which it rapidly begins to make its appearance again, assuming its former position in the middle of the vertebra, being quite evident in the twelfth in the shape of a pointed spine, while in the fourteenth it has the quadrate form, with extended crest, much as we see it in the true dorsal vertebræ.

In the third vertebra the space between the pre- and postzygapophyses is almost entirely filled in, a minute foramen on either side alone remaining, by a lamina of bone extending from one process to the other, giving to this vertebra a much more solid appearance, which in reality it possesses above that attained by any of its fellows. This bony lamina is reduced in the fourth vertebra to a mere "interzygapophysial bar" connecting the processes, while in the next succeeding one or two vertebræ it occurs only on the prezygapophyses more as a tubercle, being directed backward, then disappearing entirely, to be found again only on a few of the last cervicals as an ill-defined knob, still retaining its original position. The diapophyses at first project nearly at right angles from their respective centra, then approach the median line by being directed more backward near the centre of the cervical division of the column, and on nearing the dorsals again gradually protrude more and more directly outward. The prezygapophyses of the ninth cervical support well-marked anapophysial tubercles, which are feebly developed also on a vertebra or two above and below the ninth. The joints between the bodies of the cervicals of this Owl are upon the same plan as those found throughout the class; the anterior facet being concave from side to side, convex from above downward, the reverse being the case with the posterior facets, and when articulated fitting accurately into each other. The pleurapophysial elements, well marked in all the cervicals after passing the axis, become in the thirteenth vertebra a free cervical rib, about three millimetres in length, without neck or true head, being merely suspended on either side from the diapophyses of the vertebra, and freely movable on its exceedingly minute articulating facet.

Attached to the last cervical we find the second pair of free ribs, about two-thirds as long as the first pair of dorsals or true ribs of

the thorax. These terminate in pointed extremities and articulate with the vertebra by both capitula and tubercula, the former on elliptical facets, placed vertically on either side of the centrum at the anterior margin of the neural canal, and the latter on rounded facets beneath the transverse processes. The tubercle on one of these ribs is nearly as long as the neck; at the junction on the posterior side is found a pneumatic foramen of considerable size. These ribs are more or less flattened above from before backward, being convex anteriorly, concave posteriorly, becoming rounded below. From third to ninth vertebra, inclusive, appear beneath the vertical canal anteriorly well-developed styliform parapophysial processes, directed backward and downward. They are best marked on the segments on the middle of the neck. There is no instance in this bird of these processes being produced so far backward as to touch the next vertebra below; their tips, as a rule, about overhanging the middle of the centrum of the vertebra to which they belong. We have found in specimens of *Bubo virginianus* the parapophyses of the fourth vertebra overlapping and touching the fifth for a millimetre or more. The third and fourth cervicals have, beneath in the median line posteriorly, strongly developed hypapophyses, quadrate in form, a process that exhibits itself anteriorly on the fifth vertebra merely as a small tubercle. On the sixth this tubercle has disappeared, and has been supplanted by two others that are now found just within the periphery of the anterior facet of the centrum beneath, and on the parapophysis of each side, they being inclined toward each other. These processes, now a double hypapophyses developed from the parapophyses, continue to increase in size and inclination toward each other on the next three vertebræ, so that on the ninth, where they last appear, they nearly form a closed canal. The passage between them is intended for the carotids, to which they afford protection. The hypapophysis of the tenth, eleventh and twelfth vertebræ is single, large, quadrate and directed forward and downward. There are three on each of the last two vertebræ, each having an independent root, the two lateral ones directed downward, forward and outward, with characteristics similar to the one in the median line. Several pneumatic and nutrient foramina perforate each cervical vertebra at various points, except in the axis and atlas, where, after diligent search, aided by the lens, we have signally failed to discover them.

Dorsal Vertebræ; Vertebral and Sternal Ribs; Sternum.—The

dorsal vertebræ number five ; the anterior one articulates with the last cervical and the last dorsal with the first sacral. Although the dorsals of this bird fit very snugly to each other, it requires no further masceration to separate them from one another than it does to remove the ribs from their attachments. This close interlocking, however, greatly diminishes the movement of this division of the spinal column, bestowing upon it a rigidity only exceeded by the anchylosed vertebræ of the sacrum ; yet, it must be understood, they do enjoy, in this Owl, a considerable degree of movement, especially laterally. The neural spines have here attained their maximum development, forming, when taken together, an elevated and compressed median crest, with a thickened summit, and having a firm hold upon the remainder of the vertebræ below. Taken separately, the last is the smallest, the fourth next, and the second and third the largest. Their anterior and posterior borders are concave, allowing, when articulated, spindle-shaped apertures to exist among them, while their summits are produced backward and forward, thickened and wedged into each other. This wedging is performed in the following manner : The posterior extremity of the crest forming the summit of the neural spine of the first dorsal divides and receives the anterior extremity of the crest of the second. This same arrangement exists between the second and third, and at the summit between the third and fourth, immediately below the junction, also divides for a little distance and receives the edge of the posterior rim of the third, just beneath the union of the crests. This latter method of joining is feebly attempted between the fourth and last. The neural canal is nearly cylindrical in the dorsal region, its calibre being less at the sacral extremity and rather compressed from side to side, as are the centra as we approach that end, each one being a little more so than its neighbor beyond. Viewing these five vertebræ from above in the articulated skeleton, we observe the spinous crest already described ; we are struck with the regularity with which the postzygapophyses overlap and adjust themselves to the prezygapophyses from before backward, the facets of the former facing downward and outward, the opposed surfaces of the latter facing upward and inward. The transverse processes are horizontally compressed and rather broad ; the neural spines jut from them at right angles from points about their middles. There is an inclination for the latter to be directed slightly backward as we near the sacrum. The diapophysis of the

first dorsal is the shortest and stoutest, that of the last the most delicately constructed. Superiorly, these processes support metapophysial ridges at their extreme outer borders. These ridges on the transverse processes of the first dorsal are the largest, being rounded at both ends, and extending a little backward and forward, but far from touching the ridge either in front or behind them. The metapophysials of the last dorsal are smaller, being sharp, styliform and project only forward, not touching, however, the transverse processes in front of them.

On the intermediate vertebræ they change gradually between these two extremes, but in no instance meet the transverse processes of the vertebra before or behind them, and thus constitute an additional aid to the rigidity of the back, as it does in other species of this family and in many other birds. The centra increase in depth beneath the neural canal the nearer they are to the sacrum. In the first dorsal the body measures about one millimetre, the vertical diameter of the canal being three; in the last dorsal it equals the diameter of the canal. The interarticular facets are in the vertical plane, with their concavities and convexities opposed to each other, as they were described when speaking of the last cervical vertebræ. The bodies are about of a length, constricted at their middles and expanding toward their extremities. The first two dorsals each bear in the median line, beneath, a hypapophysial process of considerable size, affording abundant surface for attachment of some of the muscles of the neck. The process of the first dorsal has one common trunk, with a compressed midprong and two lateral and pointed subprocesses. The second dorsal possesses a single long hypapophysis, quadrate in form, dipping into the chest further than the first. There is not a trace on the remaining dorsals of this appendix. Parapophysial processes, so prominent in nearly all the cervicals, afford in the dorsal vertebræ simply articulating facets for the capitula of the ribs situated just within the anterior margin of the neural canal of each centrum, never extending to the vertebræ beyond, forming the demi-facet of andranatomia. Immediately above these facets, on either side, may be noticed a group of pneumatic foramina, of various sizes and shapes, and again, anterior to these foramina, the rim of the body of the vertebra for a limited distance becomes sharply concave, being opposite to a like concavity in the next vertebra, the two, when opposed and articulated, forming the oval foramen for the exit of the dorsal nerves.

Elliptical articulating facets for the tubercula of the ribs, looking downward and outward, are seen on the inferior ends of the transverse processes, with a midridge running from each facet to the base of the process, to be expanded and lost on the sides of the centra. As there are five dorsal vertebræ, so there are five dorsal ribs articulating with them and with the sternal ribs below. Each rib is attached to a single vertebra, as shown while speaking of the dorsals. The neck of these ribs become more elongated the nearer they are to the pelvic extremity of the body, the first possessing the shortest. This is exactly reversed in regard to the pedicles bearing the tubercula, being the longest in the first rib and shortest in the last. This contraction of the pedicles is progressively compensated for by the lengthening of the corresponding and respective transverse processes of the vertebra to which they belong. Viewing the ribs from the front, in the skeleton, the curve they present resembles the quadrant of a shortened ellipse, the vertex of the major axis being situated at the base of the neural spines; viewed laterally, the curve is sigmoidal, though a much elongated and shallow one, with the hæmapophysial extremity looking forward and the facet of the tubercle backward. The first rib is the shortest and generally, though not always, the broadest; the last being the longest and most slender, the intermediate ones regularly increasing in length and diminishing in breadth from the first to the last. In form, the ribs of this Owl are flattened from side to side, widest in the upper thirds, narrowest at their middles and club-shaped at their lower extremities, where they articulate with the sternal ribs by shallow facets. On the inner surfaces we find the necks produced upon the bodies as ridges, running near their anterior margins and becoming lost at about the junction of the upper and middle thirds in the body of the rib. Pneumatic foramina, from two to three in number and of considerable size, are found just within the commissure between neck and tubercle, posteriorly. All the vertebral ribs bear a movably articulated *epipleural appendage*, each resting in a shallow cavity designed for it upon the posterior borders. They leave the rib at right angles, but soon turn upward with a varying abruptness. The appendage of the first rib is situated lowest of any on its rib, that of the last the highest; the facets of the others are found in the line joining those of the first and last. They all make acute angles with the bodies of the ribs to which each belong, above their points of insertion. The angle made by the last is the least, and it

increases to the last. The epipleurals of the leading ribs are the widest and generally the longest. The one on the second rib in a skeleton of this bird now before me is as wide as the rib at the point from where it starts; the one on the last rib being always the smallest.

Clubbed at their superior extremities, each one overlaps the rib behind it, and in this manner adds stability to the thoracic parietes, which is undoubtedly the function these little scale-like bones were intended to fulfill. The sternal ribs connect the vertebral ribs with the sternum. There are six of them, one articulating with each vertebral rib, and having a concave facet to receive it, while the last meets the sacral rib above and articulates with the posterior border of the fifth below. The first one is the shortest and most slender of all; the fifth is the longest. With the exception of the last, their superior ends are enlarged and compressed from side to side, while below their middles they become smaller; then turning upon themselves, suddenly enlarge again, so as to be flattened from before backward, when each terminates by a transverse articular facet for articulation with the sternum. Quite an interspace exists between their facets of articulation. They all make a gentle curve upward just before meeting their respective ribs. The sternal rib that articulates with the sacral rib is inserted in a long, shallow groove on the posterior border of the sternal rib that articulates with the last dorsal one, but does not meet the sternum, simply terminating in a fine point on the posterior border of the sternal rib mentioned. From before backward the sternal ribs make a gradually decreasing obtuse angle with the vertebral ribs, while the angle they make with the sternum is a gradually increasing acute from the fifth to the first. On the anterior surfaces of their expanded sternal ends are to be found on each a minute pneumatic foramen or two. The anterior third of the lateral borders of the sternum is the space allotted for the insertion of these bones.

The Burrowing Owl being a bird not possessed of any considerable power of flight, or the necessity of having that flight ever long sustained, a circumstance arising from the life it has come to lead, we would naturally expect to find, in the course of a study of its anatomy, those characteristic modifications of the various systems which pertain to species of the class in which that gift has always been a secondary consideration. Nor are we disappointed in this expectation, for a glance at the size of the sternum of this Owl,

when compared with the remainder of its skeleton with regard to areas for muscular attachments, reveals to us the disproportion of the surface supplied by that bone for the attachment of the pectorals. That its dimensions are relatively contracted is proved by actual comparative and proportional measurements of the bones with other species of its family, individuals of which, at the best, are not noted for their powers of flight, as a rule, and of a consequence the sternum does not present so prominent a feature of the skeleton as it does in other species of the class *Aves* where vigorous flight is habitual. The concave dorsal aspect of the body is smooth, being traversed in the median line by a very shallow groove that lies immediately over the base of the keel. This groove terminates, within five millimetres of the anterior border, in a little depression, at the bottom of which are discovered pneumatic foramina, two or more in number, leading to the anterior vertical ridge of the carina beneath. Other minute openings for the admission of air into the interior of this bone are seen among some shallow depressions just within the costal borders. The bone does not seem to be as well supplied in this respect as it is in some other Owls. The costal borders supporting the transverse articular facets for articulation with the sternal ribs occupy anteriorly about one-third of the entire lateral border on either side. At the bases of the majority of the depressions that occur between these facets are found other pneumatic foramina. The anterior border is smooth and rounded, with a median shallow concavity occupying its middle third. At its extremities, laterally, the costal processes arise with a general forward tendency at first, but with their superior moieties directed backward. The costal borders terminate at the posterior borders of these processes at a higher level than the anterior margin does at their anterior borders. The coracoid grooves are just below the anterior border. They are deep, continuous with each other, having a greater depth behind the manubrium in the median line than observed at any other point. Their general surface is smooth and polished, looking upward and forward, and lying principally in the horizontal plane. They melt away into the body of the bone laterally at points opposite and not far distant from the posterior articulations on the costal borders. The margin that bounds them below is sharp, travels at right angles from the median line, at first to a point posterior to the costal processes, then making a little dip downward, then again curving up-

ward, disappears gradually with the groove it bounds. That portion of it from the point where it changes its direction to its termination is described by authors as the subcostal ridge. The manubrium, occupying its usual position in the middle line, is comparatively small, quadrate in form, compressed below, slightly notched and flattened above, its posterior surface forming the inner anterior surface of the coracoidal groove. All the borders bounding the posterior parts of the bone are sharp; the lateral ones, taken from the apices of the costal processes to their other and lower terminations, are concave. As is the arrangement generally among Owls, the xiphoidal extremity of the sternum is four-notched, two on either side, the outer notches being the deeper. Both have rounded bases, and the processes that separate them are ample and possess rounded extremities. The border upon which the keel ends posteriorly is square, though we have met with specimens in which it was slightly notched in the median line. The body is oblong, and if we include the xiphoidal processes on either side, has a length half as long again as its width. The ventral and convex surface, like the dorsal, is smooth and presents but two points for examination. The pectoral ridge, faintly marked throughout its extent, originates on each side at a point near the outer borders of the coracoid grooves, running inward and backward, and dies away at the base of the keel near its middle. This little ridge denotes the line between the pectoralis major and minor. The keel is moderately well developed, the distance from the base of the manubrium to the carinal angle being equal to the distance from the same point at the base of the manubrium to the base of either costal process or outer anterior sternal angle. It is compressed, smooth and thin, but its stability is greatly aided by the carinal ridge on either side, which commences strong and well-marked at the base of the manubrium, just within the anterior border, running parallel with the latter, and disappears as it approaches the carinal angle. The anterior border of the keel is sharp and concave; the inferior border is convex, with the edge slightly thickened. The point of intersection of these two borders anteriorly is rounded and forms the carinal angle. The inferior border expands posteriorly, and the keel terminating a short distance before arriving at the posterior sternal border, the two become blended with the surface of the body of the bone.

Sacral Vertebrae and Coccygeal Vertebrae.—In the sacrum of the

Owl now under consideration, with the exception of a few faint lines indicating the original individuality of the vertebræ, these bones are thoroughly ankylosed together and to the ossa innominata. From inspection of this compound bone in immature birds we find the usual number of sacral vertebræ composing the sacrum to be thirteen. The anterior face of the first possesses all the necessary elements for articulation with the last dorsal. The neural spine has a thickened crest that soon meets the ilia on either side; its anterior edge is thin, and gives attachment below to the interspinous ligament. The neural canal is circular and the prezygapophyses well marked. The articular facet of the centrum is in the vertical plane, with its curvatures similar to those ascribed to the anterior facet on the centra of the dorsals. The neural spines are broad and the transverse processes are strong and raised, with their enlarged extremities expanded upon and firmly united with the iliac bones. There is but one pair of sacral ribs, and they are free ones. Long and slender, they articulate with the first vertebra in the usual manner, but the relation is much more intimate, as they touch the diapophyses for some little distance beyond the tubercula toward the capitula. The lower extremities of these ribs are terminated by little roundish knobs, which articulate with the corresponding sternal rib on either side, described above as being inserted in the posterior border of the fifth sternal rib. Viewing the bone dorsal-wise, it is to be seen that the thickened crest of the neural spine of the first vertebra protrudes from the angle made by the ilia meeting it anteriorly to a greater or less distance. This broad and compressed crest, then continued backward, is firmly wedged between the ilia until we pass the third vertebra; at this point the ilia diverge from each other to another point just anterior to the acetabula, then converge, terminating in the posterior sacro-iliac border, within five or six millimetres of each other. The sacrum completely fills in the lozenge-shaped space thus formed from the third vertebra—first, by continued broadening and compression of the neural spine, that soon becomes one with the others of the series; and secondly, by the expanded extremities of the di- and parapophyses, the processes themselves also taking due part. The integrity of the surface is unbroken, save posteriorly, where a few pairs of foramina exist among the expanded transverse processes, increasing in size from before backward. Anterior to a line joining the acetabula the surface is in the

horizontal plane ; posterior to this line there is a decline, which declination is accepted also by the innominate bones ; this gives the entire pelvis a shape that seems to be characteristic of a majority of both the diurnal and nocturnal *Raptores*. The "ilio-neural" canals here present open but small apertures posteriorly at about the point where the ilia commence to diverge, passing obliquely downward and forward ; their anterior openings are large enough to allow a view of their internal walls. The neural spine that divides them throughout is compressed from side to side ; the ilia which form their outer boundaries are convex ; the neuro-spinal crest forms the roof, the basal surface being deficient, formed merely by the spine-like di- and parapophyses of the vertebræ and the confluent neural arches. Now, a line drawn mesially on the centra below, from the first centrum to the last, gradually rises until opposite the anterior borders of the ischiadic foramina, then curves rather abruptly downward to its termination. The centra of the first two or three vertebræ are compressed from side to side to such an extent as to cause them to appear wedge-shaped, the common apex or edge being below ; after that, however, they rapidly broaden, become compressed vertically and more cellular in structure. They are very broad from the fourth to the ninth, inclusive, then as rapidly become contracted as they approach the coccyx. Minute but numerous pneumatic foramina are seen at or near the usual localities. The largest foramina for the exit of the roots of any pair of sacral nerves is generally in the fifth vertebra ; they decrease in size as they leave them either way. In the young only the last few of these foramina are double ; they are all double in the adult, and placed one above another, a pair on the side of each centrum at their posterior borders. The tranverse processes of the anterior five sacral vertebræ are thrown out against the internal surfaces of the ilia, to which they are firmly attached, and act as braces to hold the engaged bones together. The parapophyses of the first form facets for articulation with the sacral ribs ; the second and third have none ; in the fourth and fifth they also act as braces in the manner above described, joining the ilia just before their divergence commences. Reliance seems to have been placed entirely in the completeness of the sacro-iliac union in the last vertebræ, for the apophysial struts terminate in that portion of the pelvic vault formed by the sacrum itself, except in the last two vertebræ, where the parapophyses abut against the iliac borders. The

parapophyses of that vertebra which is opposite the acetabula are prominent, they being long and ample, reaching to the border and reinforcing that part of the pelvis that requires it the most, the vicinity of the leverage for the pelvic limbs. In other *Strigida* several apophyses are thrown out at this point. The posterior opening of the neural canal in the last sacral vertebra is subcircular, its diameter being about a millimetre in length. This vertebra also possesses small postzygapophyses, looking upward and outward for articulation with the prezygapophyses of the first coccygeal vertebra; the articulating facet of the centrum is also small, long transversely, notched in the median line, the surface on either side being convex. At every point where the sacrum meets the iliac bones union is firm and complete, though both upon the internal and external surfaces the sutural traces are permanently apparent. The anterior iliac margins, as they diverge from the sacral spine, form an acute angle, concave forward; they have a well-marked rim or border, nearly a millimetre in width, raised above the general surface of the bone, which disappears on the outer borders as we follow them backward. The two anterior and outer angles overhang the sacral pair of ribs and fifth or last dorsal pair. From these last the marginal boundaries, which necessarily give the bones their form, are produced backward and outward to a point opposite the centrum of the third sacral vertebra, then backward and inward, forming at the above points two lateral angles. From the apices of the two lateral angles to where the borders terminate on either side in front of the acetabula with the pubic bones, the direction is such as to form a concavity on each side; the line adjoining the bases of these concavities, points opposite the posterior openings of the ilio-neural canals, being the narrowest part of the pelvis. The upper and at the same time the inner margins of the bones in question form the anterior and median angle at first approach, soon to diverge from each other and form the gluteal ridges and borders of those scale-like projections of the posterior portion of the ilia that overhangs the acetabula. Produced now as the "gluteal ridges," they tend almost directly backward, though very slightly inward, to terminate in the ischial margins. The preacetabular dorsal iliac surfaces are generally concave, while the postacetabular, and at the same time that surface which occupies the higher plane, is flat, having a slope downward and backward, with a ventral reduplication after forming the rounded and concave posterior

boundary of the pelvis. The preacetabular superficial iliac area is nearly double the extent of the postacetabular. The antitrochanterian facets that surmount the cotyloid cavities have the usual backward direction, though their surfaces look downward, outward and a little forward. The external surfaces of the ischia look upward and outward, having just the reverse direction ventrally. Posteriorly these bones are produced beyond the ilia into finely-pointed extremities, tending to approach each other. The slender pubic bones, after closing in the obdurator foramen on either side, touch and unite with the inferior borders of the ischia as far as the pointed ends of the latter, beyond which they are produced nearly to meet behind. The circular and thoroughly perforated acetabula are formed in the usual manner by the three pelvic bones. They have a diameter of about three millimetres, and their circumferences are in the vertical plane. The ischiadic foramina are elliptical and large; they are, as usual, posterior to the acetabular and above the obdurator foramina. These last are also elliptical and about one-third the size of the others. Viewing the pelvis ventralwise, we observe, in addition to points mentioned when speaking of the sacrum, the reduplication of the ilia, forming pockets behind and internally, that open outward through the ischiadic foramina and inward into the general pelvic cavity. The narrowest part of the pelvis measures 1.2 centimetres, the widest 2 centimetres, being taken between the iliac projections over the acetabula; the average length, including anterior neural spine, is 3 centimetres. Pneumatic foramina occur in the shallow anfractuositities, between the antitrochanters and gluteal ridges in the ilia. None of the caudal vertebræ are grasped by the pelvis, the posterior extremity of the sacrum always assisting to form the posterior pelvic border. The usual number of these vertebræ is seven, though occasionally an additional one is found, making eight in some individuals. This enumeration does not include the modified and ultimate coccygeal vertebra, the pygostyle. They are all freely movable upon one another, and the first upon the last sacral vertebra. The articular facets upon the centra vary in shape throughout the series; that upon the first is long transversely, with a double convexity so arranged as to accommodate itself to the one on the extremity of the sacrum; they soon become uniform, to pass to the subcircular one existing between the last vertebra and the pygostyle, on which it is concave.

The pleurapophyses and parapophyses are very rudimentary or entirely suppressed. Each vertebra bears a prominent neural spine, which, from the first to the sixth, inclusive, is bifurcated; in the last two it appears as a mere primitive knobule. The transverse processes are all deflected downward and outward, very small in the first and still more so in the last; are largest in the fifth and sixth. Prezygapophyses are well marked; they reach forward and articulate with the feebly developed postzygapophyses. In a few of the posterior segments there appears to be an effort on the part of the neurapophyses to overlap the vertebra next beyond them. The neural canal is pervious throughout, commencing in the first with a calibre equal to that in the end of the sacrum; it gradually diminishes and terminates in a minute, blind conical socket in the pygostyle. Hypapophyses are produced downward in a few of the ultimate vertebræ. They hook forward and articulate with the centrum of the vertebra next beyond them. Sometimes they are observed to be free, or rather resting upon a facette on the anterior margin of one centrum and extending over to the anterior margin of the centrum of the vertebra anterior to it, to meet a similar facette, as a tiny styliiform process. The spinal column is completed posteriorly by the pygostyle—that ploughshare-shaped segment that articulates with the last coccygeal vertebra. Above its cup-shaped facet this bone arises as a laterally compressed plate, extending backward and bifurcated at its extremity, as if to imitate the neural spines of the vertebræ of the series of which it is an ultimate appendage. Below the facet it projects forward and completes the median sequence of hypapophyses of the centra, being rather larger than any of them. The posterior curve is simply inflected downward and forward from its apex.

The Scapular Arch.—The three elements that constitute this arch are all represented, and all independent or free bones; the coracoids articulate with the sternum and scapulæ; coracoids and clavicle, connected by ligaments, lend their share to form or strengthen the shoulder-joints. The coracoid, comparatively large and strong, forms in the usual manner an arthrodial joint of restricted movement with the sternum, its lower end being in the coracoid groove on the anterior part of that bone. The inner angle of its base is about two millimetres from the mesial line, and four millimetres intervening between it and its fellow of the opposite side in the groove. This extremity is broad, its outer angle

being beneath the third sternal rib at its point of meeting the costal border; it is compressed from before backward. The articular facet, looking downward, backward and a little inward, is transversely concave, with a slight dividing ridge running anteroposteriorly, converting the general concavity into two smaller ones. The coracoid, when in position, is produced upward, forward and outward, making, with the vertical line through its base, rather an acute angle. A limited portion of the middle third of the bone only is subelliptical on section and at all shaft-like, due to the fact that the coracoid in this bird being perhaps less than the average length as compared with the size of the bird, and, secondly, to the unusually enlarged extremities, features observable, more or less, in *Raptores* generally. The anterior groove of the upper extremity, that is arched over by the head of the clavicle above, is deep and occupies fully the upper third of the bone. The coraco-clavicular process springs, thin and compressed, from the inner side of the shaft of the bone, at junction of upper and middle thirds, to turn upon itself, so as to be projected upward, forward and a little outward, terminating with an elliptical facet for articulation with the clavicle. The upper border of this process is concave lengthwise and articulates throughout its extent with the inferior margin of the acromial process of the scapula. The lower and thin edge of the coraco-clavicular process tends obliquely downward, to be lost on the inner surface of the shaft of the bone near its middle. The outer wall of the anterior groove is formed by the coracoid itself, the process just described being really nothing more than a wing-like extension forming the inner boundary of the groove in this bird; it terminates above both clavicle and scapula in a rounded tuberosous head. Below this head, anteriorly and still more inwardly, the coracoid affords a vertical, elongated facet for the clavicle, while behind, looking a little outward, is the concave elliptical facet that constitutes about one-third of the glenoid cavity for the humerus. Internal to this last, and running first directly upward, then making a right angle and continuing forward, a little upward and outward, the last direction being the upper margin of the coraco-clavicular process, is another facet, for the scapula. Behind and below, this bone displays one or two lines and depressions, boundaries of muscular attachments. In the middle of the anterior groove, opposite the base of the coraco-clavicular process, the

shaft of the bone is perforated ; this perforation is elliptical lengthwise with the shaft and passes directly through to make its appearance on the posterior convex surface just below the scapula. This foramen transmits a branch of that cervical nerve coming from between the twelfth and thirteenth cervical vertebræ. This nerve branch, after passing through the bone, is distributed to the under surface of the pectoralis minor muscle, and its filaments ascend among its fibers. This foramen is observable also in other Owls, as *Bubo virginianus*, and in some of the diurnal *Raptores*, as in *Accipiter cooperi*; in very many birds it is absent. This scapula presents little that is unusual in that bone among the class generally. It lends the additional two-thirds of articular surface to form the glenoid cavity with the coracoid; internal to this the acromion process extends forward, touching the coracoid as described and having a limited bearing on the clavicle. Posteriorly its blade-like length is produced, expanding, turning slightly outward, to terminate in an obliquely truncate extremity, with its point over the second dorso-pleurapophysial interspace.

What the scapula lacks in interest is amply made up by the changes observed in the last bone of the group, the clavicle. This element is broad above, much compressed from side to side throughout; it spans the anterior groove and touches the scapula as described above, rapidly diminishing in size as it is produced downward and inward by a gentle curve toward the fellow of the opposite side. The upper extremities in adult birds are separated by an average distance of 2.3 centimetres. If the sternum pointed to feebleness of flight in this little Owl, it is still further carried out by the ill-developed clavicles, which constitute that arch in birds when they are thoroughly and firmly united below, that assists to resist the pressure of the humeri when the wings are depressed in flight, and send them back to their former position after the completion of the action. In an old male *Speotyto*, we find this bone to be simply a pointed styliform process. In other individuals, however, and adults, too, the clavicle does not even attain to the length there shown; but, as if to bid defiance to any invariable rule governing its development, we again find in very young birds cases where it becomes confluent with its fellow, forming a broad U-shaped arch, though never a very strong one. In a case of this kind the bone was finely cancellous throughout, with an extremely attenuated layer of compact tissue outside, scarcely covering it.

In the figures given in my memoir on *Speotyto* and other individuals like it, the clavicles were pneumatic. Again, in both young and old, it may have any of its lower parts completed by cartilage; it never displays a mesial expansion of bone at the point of confluence. As already shown, the superior entrance of the anterior groove on the coracoid is a complete circuit, formed by the three bones of the group. The head of the coracoid overhangs it above; next below is the clavicle, closing it in anteriorly; lowest of all the scapula behind. A plane passing through the superior margins of this aperture would look upward, inward and backward. All the bones of the scapular arch are pneumatic, with the exception sometimes seen in the clavicle; and the foramina, to allow the air to enter their interiors, look into the enclosed groove of the coracoid just described. In the scapula the foramen is usually single and in the acromion process; single again in the clavicle, it is seen in the broadest part of the head, while in the coracoid there is generally a group of these little apertures, situated in the depression on the surface that overhangs this entrance to the coracoidal groove.

As in many others of the family, in common, too, with not a few of the diurnal *Raptores*, this Owl possesses an os humero scapulare, of the usual form, that increases the articular surface of the shoulder-joint for the humerus.

Of the Upper Extremity.—The upper extremity consists of ten distinct bones in the full-grown bird, omitting minute sesamoids that may possibly exist. These are the humerus of the arm, the radius and ulna of the forearm, two free carpels, the metacarpal and four phalanges. The humerus is a long, extremely light and smooth bone, and when viewed from above in its position of rest, with the wing closed, it reminds one of the curve in the small italic letter *f*, being concave above toward the scapula. And this bone is so twisted that this same curve is exhibited, though not quite as well marked, when viewing it laterally. The humerus is 5.5 centimetres long, subcylindrical on section at midshaft, at which point a minute aperture exists for the passage of the nutrient vessels that are distributed to the osseous tissue and its internal lining. This foramen enters the bone very obliquely, its external orifice being nearest the proximal extremity. This end is well expanded, and surmounted above by a strongly developed radial crest that overhangs the shaft slightly toward the palmar aspect. It occupies a

line on the bone from the articular facet for the shoulder-joint to a point one-third down the shaft. The ulnar crest, or lesser tuberosity, encloses quite an extensive fossa below, which acts also as a partial screen to the pneumatic foramina, for the humerus is highly pneumatic. These foramina usually consist of one circular opening, surrounded by a group of many smaller ones. In young birds a very large foramen is generally present; this closes in as age advances. Between the two tuberosities is the vertical and elliptical convex facet for articulation with the glenoid cavity of the shoulder-joint, constituting the "head of the humerus." The radial crest displays palmar, a ridge for the insertion of the tendon of the pectoralis major. The distal end of the humerus is also expanded in the vertical plane and gently convex anconad—the reverse condition of the proximal extremity. It presents for examination the articular facets for the ginglymoid joint it forms with radius and ulna and the superior and inferior condyles. The larger, and at the same time the superior, of these two facets is intended for the cup-shaped depression in the head of the radius, as well as a portion of the articular surface on the ulna. It is ovoid in form, and placed obliquely on the bone, the inferior end of the long axis of the oval being situated the nearer the proximal extremity of the shaft. This facet is separated from the trochlea surface for the ulna by a well-marked depression; this latter is a knoblike tubercle when compared with the radial facet. The condyles and the entire articular surface are about in the same plane posteriorly—that is, neither increases the length of the bone one more than another. Passing from the trochlea surface for the ulna toward the inner aspect of the shaft, there is to be observed a shallow depression, which corresponds to the olecranon fossa of human osteology, and in full extension of the limb allows room for that process of the ulna in this bird. The radius has an average length of 6.6 centimetres, and the ulna a corresponding length of 6.8 centimetres, so that their distal extremities when articulated, as we examine them in the closed wing, extend beyond the head of the humerus. In this position also the radius occupies a higher level than the ulna, and is the innermost bone of the two. The radius is slender, the transverse diameters of its subcylindrical shaft varying but little throughout its extent, though its extremities are expanded. From the elbow-joint, when the two bones are in position, it at first diverges from the ulna at a moderate curve, to

approach that bone again to nearly absolute contact at the junction of middle and distal thirds by a more gentle curve; from this latter point it lies parallel with the ulna to the wrist. The head of the radius is elliptical, being crowned by a depression for articulation with the oblique facet on the distal end of the humerus. Beyond, below, and to the outer aspect of this facet is another of similar form, though convex, for articulation with the ulna, while still more advanced toward the distal end we find the bicipital tuberosity, and, beyond, the minute nutrient foramen, all of the bones beyond the humerus being non-pneumatic. The distal extremity of the bone in question is terminated by a fanlike expansion that caps the ulna and articulates by its anterior convex margin with the radiale of the wrist. It is marked above by the longitudinal groove for the tendon of the extensor metacarpi radialis longus. The shaft of the ulna is nearly three times as large as that of the radius. Its outer half is straight, its inner curved toward the humerus, thereby increasing at the proximal moiety the interosseous space by the assistance of the opposite curve made by the radius. The stronger end is the one involved in the formation of the elbow-joint; here is to be observed the depression for the head of the radius, or the lesser sigmoid cavity, while the articular surface beyond that occupies the entire end of the bone, directed downward, inward and backward, presents for examination the greater sigmoid cavity, the olecranon and coronoid process, and the cavity for articulation with the oblique facet of the humerus. The greater sigmoid cavity is subcircular and of some depth; its lower and produced lip represents the coronoid process, as does its upper, better-marked and more tuberosus prolongation represent the olecranon of andranatomia. Extending radiad is another concave, quadrate, articular facet for the oblique tubercle of the humerus, as the first-mentioned concavity articulates with the ulnar tubercle or trochlea. A little beyond this articular surface are various small tuberosities and depressions for the origin and insertion of muscles. Approaching the wrist the shaft is seen to be generally smooth, and diminishes in calibre at junction of middle and proximal thirds in the locality of the nutrient foramen, while along its entire length at certain intervals are the slight elevations for the apices of the quills of the secondaries. The distal extremity of the ulna enters into the formation of the wrist joint; it is not nearly so large as the proximal end. The articulating sur-

face has a deep mesial cleft in the vertical direction, limited externally by an elliptical curve, internally by a double tuberosus knob for articulation with the irregularly formed ulnare of the carpus, while above is a roughened surface that is covered by the expanded end of the radius. The os prominens is not large in *Speotyto*.

The carpus in the adult is composed of the ulnare and radiale. The radiale articulates with radius, os magnum and ulna. The radial articulation is a rather deep and elliptical concave facet, its lower border gliding over the ulna, while the distal end of the radius plays in the concavity. The opposite face of this six-sided little bone is also smooth, and is a nearly flattened surface that articulates with os magnum. The upper and lower surfaces, as well as the ends, are simply roughened and fashioned to give the proper form to that part of the joint into which it enters, and for the attachment of ligaments. Os magnum has become confluent with the mid-metacarpal, forming its trochlear surface for articulation with radiale, ulnare and ulna. The ulnare is an extremely irregularly shaped bone; it appears to be rather the larger of the two free carpals, and is the lower in regard to position. It articulates with ulna and os magnum simply. Its outer ulnar facet is elliptical and shallow, monopolizing the entire face of the bone; its inner facet is very irregular, being formed so as to accommodate itself to the ulnar tubercles, with which it articulates. Projecting toward the metacarpus, this little bone has two prongs or limbs, the inner aspect of the extremities of each possessing a subcircular facet that articulates, the outer and shorter limb with the internal trochlear margin of os magnum, on the same side; the inner and longer limb straddles the metacarpal and glides over the surface, during movements of the joint, at a point about where magnum becomes confluent with mid-metacarpal. The ulnare has also attached to it ligaments that enclose the wrist-joint beneath—capsular ligaments of the carpus.

The metacarpus is formed in the usual manner, by the amalgamation of the pollex, medius, index and metacarpals, the first, second and third respectively. It is 3.3 centimetres long, articulating with radiale, ulna and ulnare at its proximal extremity by means of os magnum, that has become ankylosed with mid-metacarpal and the phalanges at its distal end. The first or pollex metacarpal is short, and fused with the second just anterior to the boundary of the trochlear surface of os magnum; it makes an

angle with the shaft of the second metacarpal, its extremity being directed upward. At its base, close to the shaft of mid-metacarpal, it bears a uniform facette for articulation with the thumb, a free, three-sided, pointed little bone, about nine millimetres in length. The second metacarpal is straight; its enlarged proximal extremity is formed chiefly by the confluent os magnum; its shaft is inclined to be subtriangular, with its broadest face looking forward; its distal extremity is terminated by a knot-shaped enlargement, that is still further enhanced by the confluence with the third metacarpal. It bears a digit composed of two phalanges, the proximal one bearing on its posterior border, for nearly its entire length, a quadrangular expansion that has a raised margin, leaving a single concavity radiad; a similar concavity occurs on the ulnar side, but is there divided by a ridge sloping downward into two shallow depressions. This little bone somewhat reminds one of a cleaver, with the end of its handle attached to the metacarpus. It supports at its distal extremity the second phalanx of this digit, a bone having very much the same appearance and shape as the index digit, only being longer and more pointed. The proximal ends of all the phalangeal segments are more or less expanded, in order to support the ample facets of articulation that occur among them and the metacarpus. The third metacarpal is expanded transversely above, slender below, where it falls a little beyond the medius after its confluence with it. It also has a small pointed phalanx, freely attached to its distal extremity, and lying in that recess formed by the shaft and posterior expansion of the first phalanx of the second digit. At a very early date, comparatively, in the life of this Owl, ossification is normally extended to many of the tendons of important muscles of the anti-brachium and pinion.

Of the Pelvic Limb.—The lower extremity is composed of twenty distinct segments, including the patella, or just double the number found in the pectoral limb. This increase will not surprise us when we recollect the greater number of small bones devoted to the foot above those found in the hand. Its most striking feature, next to those osteological characteristics common to the family, is its extreme length, due principally to the tibia and tarso-metatarsus. All the bones of the lower limb in this species are non-pneumatic. The femur is comparatively of good size and strong; articulated in the usual manner, it measures four centimetres in length and seven millimetres across the condyles at their widest part. At the proxi-

mal extremity, externally, above the shaft, there is a flat and roughened surface, bounded above by the curved trochanterian ridge. This surface forms the major part of the great trochanter. There is no trochanter minor present. The trochanterian ridge is the highest part of the bone, when it is held vertically; it lies in the antero-posterior plane, with the femur in its natural position, the bird standing erect; from it, sloping directly inward and occupying the remainder of the summit between it and the head, is a smooth articular facet, broadest externally, merging into the globular head internally.

With the head it constitutes the articular surface for the pelvis—it being opposed to the antitrochanterian facet of the ilium, while the caput femoris plays in the cotyloid ring. The excavation for the ligamentum teres on the latter is conical and deep, consuming a good part of the bone; it is situated on its upper and inner aspect. In looking into the relation existing among head, neck and shaft of the femur of this bird, we must observe that if the straight line lying in the middle of the surface of the internal aspect of the shaft were produced upward, it would pass through the centre of the facet at the summit—if anything, nearer the trochanterian ridge than it does to the head. This facet also is notably narrower just before arriving at the head than at any other point. Again, the plane passing through the external and circular boundary of the head makes an angle of a good forty-five degrees with this line, so that with these facts in view we can hardly assert in the case of the species before us, as do some authors on comparative anatomy in describing this bone *in general*, that the head of the femur is either nearly at right angles with or is sessile with the shaft. It would appear, though, that it has quite as much of a neck to boast of as the anatomical neck of humerus or the neck of the scapula described for man's skeleton in works on human anatomy. The shaft throughout its length, until it begins to approach the distal condyles, where it is subcompressed and expanded antero-posteriorly, is nearly cylindrical, bends slightly backward at its lower end, and offers for examination merely the intermuscular ridges, with the linea aspera feebly marked, and the nutrient foramen, all of which maintain their usual positions on the bone. At the distal extremity the rotular canal, the intercondyloid notch and the popliteal fossa are all strongly produced, giving due prominence to the condyles, internal and external, between which they form the dividing tract.

The external and lower condyle is divided in two by a vertical excavation, deepest above. Of the two facets thus formed, the inner articulates with the tibia, the outer with the head of the fibula. The external surface of this condyle is flat and continuous with the shaft. The inner condyle, broad posteriorly, has a slight depression in the surface that bounds it on the tibial side, and as a rule the usual sites for ligamentous attachments about this extremity are at best but feebly represented. The patella, encased in the tendon of the quadriceps femoris, is situated about three millimetres above the rotular crest of the tibia, anteriorly, having the form of an oblate hemispheroid with its base directed upward, the long diameter of which measures 3.5 millimetres. The tibia is the longest bone in this bird's skeleton, and at the same time, taking this length into consideration, the least curved or bent along the shaft; it has, however, a slight and appreciable gradual curvature forward that is most apparent about the junction of middle or upper thirds. Its average length, measured on the inside, is 6.7 centimetres; its extremities being expanded for articulation, above with the femur, below with the tarso-metatarsus. These expansions are of about equal dimensions, though differing vastly in form; in this respect being unlike some of the diurnal *Raptores*, in which the distal condyles constitute the smaller end of the bone.

Among the most important points presented for examination about the head is the articular surface that crowns it above for the condyles of the femur. This is subquadrate in form, uneven, highest at the anterior and inner angle, sloping gradually to the opposite one, bounded almost entirely around by a raised margin, that is most feebly developed posteriorly and at a point anterior to the head of the fibula, where it is absent. In front, this border may be nominated the rotular or epicnemial ridge, though it is no more prominent there than at any other point; but in many birds it is so produced as to form a process of some size, to which these terms are applied. Externally and posteriorly the margin is roughened for the attachment of ligaments that bind the head of the diminutive fibula to this bone. In the middle of this articular surface is to be seen a tuberosity, on either side of which are the depressions for the femoral condyles. Produced downward, anteriorly, from the rotular ridge are the cnemial ridges; these have their crests bent slightly forward, and they merge into the shaft below, abreast the superior point of the fibular ridge. Of the two, the outer or

ectocnemial is the shorter—that is, it does not extend so far down the shaft as the inner or procnemial. They have between them an ovate concavity, with the larger end above, the lower end subsiding upon the shaft with the ridges themselves. The vertical elevation on the external aspect of the shaft for articulation with the fibula runs down the side but a short distance; a little below its abrupt termination may be observed, in a line with it, the nutrient foramen, entering very obliquely from above downward. After leaving the fibular ridge as far as the point where the bone begins to expand transversely at the distal extremity, the shaft is remarkably smooth and nearly cylindrical. This transverse and distal expansion is checked, both anteriorly and posteriorly, by abruptly meeting the distal condyles, the point of meeting perhaps being rather the higher behind. The condyles, differing but little in size, are singularly uniform as to shape, with their curved surfaces downward, being flat on their outer aspects, with a raised rim bounding them in each case. They stand out prominent and apart. Anteriorly their convex surfaces are the widest, behind they slightly approach each other, and the articular convex surface is narrowest on the outer condyle. The intercondyloid notch is deep, and appears equally well marked throughout its extent. Immediately above it, anteriorly, there is a deep triangular depression; another and more shallow one is found behind in the corresponding locality. Up the shaft a short distance on the inner side, anteriorly, is a little tubercle, to which is attached the ligament that binds down some of the strong tendons of the extensors. This ligament crosses the anterior triangular depression mentioned above obliquely, to be inserted near the external condyle superiorly. This is the arrangement also in *Bubo virginianus*, but in some of the Hawks this ligamentous bridge has become thoroughly ossified, forming a strong bony band across the concavity in question. It is interesting to remark here, however general the rule may be as applying to the diurnal and nocturnal *Raptores*, that whereas this band is ligamentous in the tibia in some of the Owls, a bony one fulfilling the same function is found in them just below the head of the tarso-metatarsus; these conditions are just reversed among some of the Hawks. Usually, in old birds of this species, the fibula is firmly united to the entire length of the fibular ridge of the tibia, a union almost amounting to ankylosis. Arching outward, its head, surmounted by an antero-posteriorly elongated

facet, rises a little above that bone at the point where it is attached to it by ligament. This is the larger part of the shaft in regard to size. Below the ridge this bone becomes simply a delicate little spine, that merges into the shaft of the tibia at about the junction of middle and distal thirds, though it may be traced after this as far as the middle of the outer condyle, where it terminates by a minute tubercle. The head is notched externally, near the centre, and has lodged at that point a small sesamoid that is in the lateral ligament of the knee-joint. Posteriorly on the shaft, about midway down the superior tibio-fibular articulation, we observe a small tubercle for the insertion of the tendon of the biceps. The long segment that exists between the tibia and the phalanges of the pelvic limb is the bone tarso-metatarsus, or the confluent metatarsals of the second, third and fourth toes with certain tarsal bones at its proximal extremity. It measures down the anterior aspect, mesially, 4.6 centimetres, and has its extremities enlarged for articular purposes, in common with other long bones of the skeleton. At its proximal end the bone presents superiorly two concave articular surfaces for the condyles of the tibia. They appear nearly on a level with each other, the bone being held vertically. The inner and larger of the two is elliptical in outline, antero-posteriorly; the outer and smaller is fashioned off behind by a tuberos process, directed upward and outward. Between these two surfaces arises a prominent tuberosity that in the articulated limb enters the intercondyloid notch of the tibia quite accurately, and is intended for ligamentous attachment. Anteriorly and internally a groove exists that runs down the shaft, to disappear a little above its middle. This canal is deepest immediately below the articular expansion, and is here bridged over by a little arch of bone, a millimetre in width, that serves to bind down and hold in its proper place the tendon of the long extensor of the toes. Posteriorly there is a much deeper and longer tendinal canal that extends the entire length of the shaft, being shallowest at the middle and most capacious at the proximal extremity; this is bounded above and internally for a short distance below the head of the bone by the hypotarsus, a thin lamina of bone that has a foramen near its base; this process is surmounted by an elliptical and compressed tuberosity, placed vertically. Above, the opposite wall of this groove is also thin, and extends in common with the calcaneal process, directed backward. There are two other foramina

seen at this end of the tarso-metatarsus; one just at the external termination of the bony bridge mentioned above, and the other outside and a little above it. Their posterior openings are immediately behind the anterior ones, or, in other words, they do not pierce the shaft in any way obliquely. The shaft of this bone is notably square on section for the major part of its extent, being encroached upon, however, both before and behind, by the afore-said tendinal grooves. The tendons, especially those that occupy the posterior canal, are very prone to ossification, forming quite sizable bones in the adult, the largest of these being equal to the fibula in bulk, exclusive of course of the head of that bone, and not being as long. Returning to the tarso-metatarsus, we find at its distal extremity, for examination, the trochleæ that articulate with the rear segment of all the toes except hallux. Viewing this end with the bases of these trochleæ toward one, we find the general outline made by them to be crescentic, with the horns having a tendency to approach each other behind. The outer trochlea is the highest and longest from before backward; the other two are about on the same level, the inner one having a posterior and internal process, while the middle one is possessed of a median cleft traversing its face antero-posteriorly. They are sharply divided from each other by narrow slits that extend up as far as the articulating part, and are continued on the anterior aspect of the shaft for a short way as delicate groovelets. A foramen is situated in the outer of these that gives passage to the anterior tibial artery, and is comparatively larger than is usually seen in the Owls. Behind, the tendinal groove expands, and is bounded distally by the concave border formed by the trochleæ. Upon its internal margin, just above the extremity of the bone, it shows an elongated but feebly marked depression of about three millimetres in length. This facet articulates with the os metatarsale accessorium, which is joined to the bone by ligament. This little bone in this bird has an average length of four millimetres. It is twisted upon itself, and bears upon one border a convex, smooth surface for the tarso-metatarsus, while distally it has an articulating surface, resembling more the mid-trochlea than any other, for the proximal segment of the hallux. Above it is sharply grooved for the tendon that goes to that toe. The toes are four in number, and their joints follow the rule that governs the greater part of the class *Aves*—that is, first, second, third and fourth toes have two, three, four and five pha-

langes allotted to them, respectively. The first phalanx of the hind toe is more compressed from side to side than in the other toes, possessing more of the characteristics of the second joint. Its posterior facet, that articulates with the accessory metatarsal, fits accurately into the cleft surface seen on that little bone. Anteriorly the facet has a median groove, forming two vertical convexities for the double concave facet on the claw, with its dividing ridge. The claws are all a good deal alike, varying in size, the rear one being the most compressed laterally. They are pointed, arched and nearly conical, the horny thecæ that cover them during life only being grooved on the under side. Their proximal ends have an articulating facet for the next phalanx behind them; this is so arranged that they can be more smartly flexed than any of the other joints of the foot, due to the convex articulating surface extending well beneath on the phalanx they meet. On the under side of their proximal extremities is a tuberosity for the attachment of the flexor tendons; it has on either side, below, an oval foramen to allow vessels and a nervelet to pass to the extremities of these unguis phalanges. The first joint of the second toe, and the first and second of the third, are thickest and short, articulating internally with the tarso-metatarsus, and having their facets so arranged as to allow of motion only in the one plane. These bones may almost be said to interlock with each other, with their superior projecting processes behind fitting closely into the deep groove intended to receive them on the anterior faces of the joints to their immediate rear. The remaining phalanges of these two toes resemble the proximal segment of hallux. The fourth or outside toe possesses five phalanges, but the three innermost segments are very short, and are really nothing more than one of the middle type of phalangeal bones, such as the third on the mid-toe, divided into three nearly equal parts, the proximal and distal pieces retaining all the characteristics of that bone, while the middle segment is simply a mid-section of the shaft. This arrangement, however, together with the manner in which the proximal phalanx articulates with the long and elevated trochlea on the tarso-metatarsus, gives this toe a versatility and a power to be thrown outward and, to a limited extent, to the rear that is not enjoyed by any of the other toes, constituting as it does one of the interesting anatomical features that we find in the family *Strigidae*.

So much then for the osteology of *Speotylo*. The account of it

I have just given above sinks far into the realm of details, but occasionally such descriptions are very useful, and it is hoped that it will be found to be the case in the present instance.

There are at my hand two skeletons of the nestlings of the Great Horned Owl (*Bubo virginianus*) that I secured from alcoholic specimens presented me by Dr. Strode, of Bernadotte, Illinois. (See Pl. X, Figs. 1-4.) They were taken by him at the time the birds were on the point of quitting the nest to shift for themselves. Some points of great interest are to be observed in either of the skeletons of these Owlets, as in them all the separate osseous elements of this part of their economy are still individualized. For example, in the skull the small yet distinct orbito-sphenoids are seen to be ossified, and the basitemporal is beautifully defined. The basiptyergoid processes are as well developed as we find them to be in an old bird of the same species; while the interorbital septum is at this time only performed in membrane. On the vault of the cranium the sutures among the parietals, frontals, and squamosals are in close contact for their entire marginal lengths; this is not quite the case, however, with the bones of the base of the skull. The otic elements are likewise quite distinct, and the vomer has not as yet ossified.

Passing to the remainder of the trunk skeleton, we note the usual state of building up, by their elements, of the various vertebræ all throughout the spinal column; and find, moreover, that *three* vertebræ enter into the formation of the pelvic sacrum.

No bone at all is as yet to be detected in the sternum, although the clavicles are now quite perfectly ossified, completely united below, and the arch possesses no little strength. The remaining bones of the shoulder-girdle, as well as the ribs, are well on toward ossification, though in form they are still quite primitive.

In the wing all the elements are thoroughly independent of each other, and the structure as a whole is always brimful of interest to me. We find that the os prominens has not yet ossified, and only a tiny nodule of bone can be detected either in the radiale or the ulnare. The expanded part of the proximal phalanx of index digit is entire, and all the finger-joints are pretty well ossified.

With respect to the pelvic limb we observe that the proximal extremity of the femur presents but a club-like end, and no hint is as yet betrayed of the formation in bone of its head, neck or the trochanter. At least three bony ossicles are to be discovered in the

tarsus, as well as an ascending process of the astragulus. The latter is quite conspicuously marked. Fibula is noted for its length, but all signs of a fibular articular ridge on the side of the shaft of tibio-tarsus are still wanting. The two bones simply lie alongside of each other, faint indications of any coössification being seen only at their distal ends. Fusion is fairly well advanced among the metatarsal elements, omitting, as I do of course, the small accessory one for hallux, which, as we know, remains permanently free throughout life. Finally, the bones of the feet are seen to be in a stage of ossificatory advance well in keeping with the other elements of the limb of which I have just been speaking.

Other Owls of the United States avifauna present us with very interesting characters in their osseous systems. Upon examining a skeleton of *Asio wilsonianus* (Pl. XV, Figs. 22 and 23; also Pl. XVII, Fig. 30), we are confronted in it with a strigine skull quite different in its pattern from anything we find in *Bubo*. In conformation it is symmetrical, so far as its auricular region is concerned. Both nasal and interorbital septa are absolutely entire, and I have yet to see a skull of this species that has a perforation in either of these partitions. One of the most characteristic features is the manner in which the postero-superior margin of either orbit is broadly flattened out, while each supraorbital process is decurved, pointed and prominent, and projects over the middle point of the orbit from above. The tympanic bullæ are large and open; the postfrontal processes rather small and jutting well out from their bases. Behind these, on either side, another long spiculiform process is sent down in front of the quadrate. It is directed forward and downward. The pars plana is upon the bubonine type, and the maxillo-palatines are of fairly large size. Coming to the vomer we find it of some considerable size, being pointed in front and fused with the palatines posteriorly. Both the pterygoids and the quadrato-jugal bars are straight and unusually slender for an Owl. The pterygoidal heads of the palatine bones are conspicuously separated, a condition that throws the anterior ends of the pterygoids themselves widely apart in this skull. They are never in contact, I believe, in any Owl. *Asio* is noted for another feature in its skull—this is the peculiar flatness of the posterior aspect of the cranium, as well as its unusual width and height for a skull of its comparative size.

Finally, we are to note that the interorbital septum is relatively much thicker in the transverse direction than we find it in other

bubonine genera, as for instance *Bubo* or *Speotyto*. The post-palatine blades are broadish, flat and thin, quite unlike other Owls.

This Long-eared Owl has a mandible of the same general pattern as seen among the *Strigidae* generally. The bone is rather light; the inturned processes of the articular ends are longer than usually seen in other species and genera; the superior margin of either ramus, near its middle, is gently curved outward; the ramal vacuity is ragged and slit-like in the longitudinal direction. Fig. 6 and Fig. 30, Pl. XVII, give a good idea of the skeleton of the trunk in *Asio*, and I would only call attention to one peculiarity here, and we are to note that the grooves on the front of the sternum for articulation with the coracoids decussate, as they do in certain diurnal Raptores. This is not the case in *Strix pratincola*, but is seen in *Bubo maximus* and other bubonine Owls.

The clavicles are firmly united below, and a coracoid is pierced through its shaft in the same manner as we found it in *Speotyto*.

The wing bones are comparatively long, and the humerus (Pl. XV, Fig. 22) alone pneumatic, and it highly so, the foramen being almost circular and flush with the general surface of the bone. I have not seen the os prominens in this species, and am inclined to believe that it is either very rudimentary or perhaps entirely absent. The expanded portion of the first phalanx of index digit is very thin, and divided near its middle by an oblique osseous ridge. We noted that it was solid and nearly of uniform thickness in *Bubo*, twice perforated in *Strix*.

Respecting the pelvic limb, the long bones of thigh, leg and metatarsus offer no special departures from those structures in ordinary Owls at large; but in the foot, attention is called to the relative lengths of the first and second phalanx of the third toe. These are subequal, to be sure, but not in the same degree as we found in *Bubo*, for here in *Asio* the second phalanx is relatively longer than the same joint in the Great Horned Owl.

Several species of the genus *Syrnium* present us with interesting characters in their skeletons.

Dr. Robert Collett has given us quite a number of good figures of the skulls of various species of *Syrnium* in his well-known memoir entitled "Craniets og Oreaabningernes Bygning hos de nord-europæiske Arter af Familien Strigidae," a translation of which, including additional matter and all the original plates and figures, has been published by the present writer, as stated in the Introduction,

in the *Journal of Morphology* (Boston, U. S. A., Vol. XVII, No. 1, 1900, pp. 119-176, Figs. 1-7, Pls. XV-XX). Taken in connection with all we have already recorded upon the skull of these birds in several genera, it will not be necessary to dwell upon this part of the skeleton in *Syrnium*, as the figures to which allusion has just been made will be fully sufficient to show the special characters and form of it. (See Pl. XIII, Figs. 13 and 15.) One point of note is to be observed, however, and that is in some species of *Syrnium* the skull is symmetrical, while in some others asymmetrical distortion to a moderate degree is observable. Of the first condition *S. nebulosum* is an example, and of the latter *S. cinereum* furnishes us an instance. It is symmetrical in *Pulsatrix torquatus*. (Pl. XVIII, Fig. 13.) In this genus *Syrnium* the outer pair of notches of the sternum are conspicuously deep; the manubrium is well pronounced; the coracoidal grooves slightly cross each other; the clavicles are firmly united below, and the os prominens is of some considerable size. An interesting little point is seen in the femur, where the pit in the head of the bone for the ligamentum teres is very much deeper than is usually the case among birds.

Another Owl that exhibits a peculiar asymmetry of the cranium is *Scotiapex c. lapponica*; here the postfrontal wing is thrown farther outward on the right side, something after the order found in a species of the genus *Syrnium*, to which we referred in the last paragraph.¹

Probably the best examples of cranial asymmetry among the *Strigida* are to be seen among the representatives of the genus *Nyctala*, as, for instance, in *N. tengmalmi*. Here it does not involve so much the position of the postfrontal processes as it does distort the squamosal region of the skull upon either side. A skull of this bird has been nicely drawn for us by Collett, as stated above, and republished by me in the translation of his paper.

How such a condition as this asymmetry came to be evolved will probably remain one of those enigmas in zoölogy not to be solved through the researches of man. It is difficult for me to see what

¹ This statement in reference to *Scotiapex* must, for the present, be taken with caution, as the observation was made by me upon a skeleton so labeled in the United States Army Medical Museum at Washington, and I know to my cost that the diagnoses of specimens in many cases in that collection are incorrect to a degree probably unparalleled in any institution in existence. In my own collection I have but the trunk skeleton of *Scotiapex*.

especial advantage it can bestow upon the bird, or how it would better fit it for the struggle for its existence. Apparently the largest and most powerful Owls in the world have perfectly symmetrical crania; while, as I have already noted above, the largest species known to me wherein evident asymmetry is present in that part of the skeleton is *Syrnium cinereum*. On the other hand, our very smallest owls, the pygmies of the group, as *Glaucidium* and *Micropallas* (see Pl. XIV, Figs. 17 and 18), possess wonderfully symmetrical little skulls, barely exceeding in size the skull of a large Thrush.

Other ornithologists have invited our attention to this cranial asymmetry as exemplified by the genus *Nyctala*. As long ago as 1870 Dr. T. H. Streets, of the United States Navy, referred to it in the *Proceedings of the Academy of Natural Sciences of Philadelphia* (p. 28); and in the *History of North American Birds*, Mr. Ridgway has figured the skull of Richardson's Owl (*N. richardsoni*), showing the same character.

Nyctea nyctea (see Pl. XII, Figs. 8 and 11; Pl. XVI, Figs. 26, 28 and 29) has a skeleton that in all essential particulars closely resembles that part of the anatomy of *Bubo virginianus*. The bird clearly belongs to the bubonine section of the group.

Screech Owls, or what we call the Screech Owls in the United States, are of many species and subspecies in the fauna. They have had the genus *Megascops* created to contain them, and I have examined complete skeletons of a number of the varieties. After the bubonine order in point of skeletal structure, they yet exhibit some interesting little peculiarities of their own. (See Pl. XIII, Figs. 12 and 16; Pl. XIV, Fig. 19.)

Megascops asio trichopsis (or any of its genus) has a skull more like that part of the skeleton in *Speotyto* than any other of our Owls, with the exception of *Surnia*. It differs, however, in possessing a well-developed vomer, whereas it lacks the process on the quadratojugal bar seen in the Burrowing Owl. *Megascops* has an extensive internasal septum which is quite thick and extends well backward. The interorbital septum is thin, and may show a small vacuity near its centre. Either superior border is but very slightly rounded off, it being quite sharp in *Speotyto*. Another point wherein these two Owls agree and differ from others is the formation of the foramen in the squamosal region of the cranium, through which the tendon of the temporal muscle passes. This character was described when

speaking above of the same condition as it occurs in *Speotyto*. In *Megascops* the supraorbital processes are very nearly entirely aborted, and in young Burrowing Owls they are not very strongly pronounced. Both forms have symmetrical skulls, and in both the mandibles are almost entirely alike.

With respect to the remainder of the skeleton, a *Megascops* has the four-notched sternum, in front of which the coracoidal grooves do not decussate, and the manubrium is small. The os furcula is a single U-arch and a weak one. At the distal end of the radius in the skeleton of the wing the os prominens is almost of rudimentary proportions. Finally, aside from specific variations in form, all the other components of the representatives of this genus agree with the bubonine type of structure.

Already I have noted the fact above that *Surnia ulula* approaches *Speotyto* closely in some of the characters of its skeleton. This is especially noticeable in the skull, where not only the general contour of that structure in the Hawk Owl strongly reminds one of the skull of *Speotyto*, but we find the resemblance to be real when we come to examine and compare some of the details. For instance, the external narial apertures are subcircular, or we might say broadly elliptical in *Surnia*, just as they are in the Burrowing Owl; and, moreover, we find the supraorbital processes to be of the same form in each. *Surnia* further has the process on the upper side of the quadrato-jugal bar, although it is not as strongly pronounced as it is in *Speotyto*. Again, *Surnia* lacks a vomer, and the structures at the base of the cranium very closely resemble the corresponding ones in the Burrowing Owl.

In the squamosal region, however, the foramen for the passage of the tendon of the temporal muscle does not form as it does in *Speotyto*, there being but a broad notch in the place of it.

The mandibles are very much alike in the two birds; and the remainder of the skeleton in *Surnia* is fashioned upon the type in the bubonine Owls generally.

Lastly, we must say a word about the skeleton in those dwarfs of the Strigine race, the Pygmy and Elf Owls. Personally, I have never examined the skeleton of a *Glaucidium*, but on the other hand I possess three skeletons of *Micropallas whitneyi*, a smaller Owl than any of the pygmies¹ (see Pl. XIV, Figs. 17 and 18).

¹ I am indebted to Mr. Herbert Brown, of Tucson, Arizona, for this valuable

These diminutive birds, so far as we can judge from *Micropallas*, possess a skeleton that has in it many characters that remind us of the skeleton in *Speotyto*. The general form of the skull is much the same, although it will be seen that in *Micropallas* the fronto-supraorbital processes are almost entirely aborted. Both species apparently lack a vomer, while, too, both have the peculiar expansion on the upper side of the quadrato-jugal bone. This is very conspicuous in *Micropallas*, and appears to have something to do with making a more complete bony periphery for the orbit. The sclerotal plates of the eyeball rest against it below. Superiorly, round behind and at the sides, *Micropallas* has an unusually rounded cranium, and shows in the squamosal region a notch for the transmission of the tendon of the temporal muscle. No asymmetry is noticeable in the skull, and the arrangement of the bones of the roof of the mouth are very much as we found them in the Burrowing Owls. A good-sized ramal vacuity exists in either ramus of the mandible and the hyodean apparatus essentially agrees with *Speotyto*. Other points worthy of notice in the skeleton of *Micropallas* are: it has in the arm a pneumatic humerus, and a very small os prominens at the distal end of radius over the wrist. Its os furcula is feeble, but thoroughly united below; the manubrium of the sternum is well pronounced, and the sternum itself four-notched. When *in situ* the coracoids are well apart at their sternal extremities, and the shafts of those bones are each pierced by a foramen, in a manner similar to what we find in so many Hawks and Owls. Its vertebræ and ribs, between skull and pelvis, agree with the bubonine type of Owls generally, but it seems to possess a fewer number of caudal vertebræ, never as many as eight free ones, as we find in other representatives of this group of birds. Another structure we must observe is its pelvis; this differs considerably in pattern from what we see as a rule in most other Owls, for in some respects it reminds me not a little of the pelvis as I have found it in certain Passerine types. In it the pelvic basin is not noticeably contracted nor deep; and what is still more striking, there is no inclination for the post-pubic bones to curve toward each other posteriorly. They project

material, and at the time I received it there was not a skeleton of a *Micropallas* in any of the collections of the larger institutions of the United States nor in Europe. Moreover, I understand, the bird, through the persistent destruction of collectors, stands much in danger of becoming extinct.

directly backward, as do also the ischia above them. Aside from the disproportion we see in the relative lengths of the bones of the leg of *Speotyto*, *Micropallas* has a skeleton of that extremity much as we find it in those birds. Its fibula is exceedingly slender and considerably shorter than the tibio-tarsus; the arrangement and structure of the podal joints of pes is bubonine.

ON THE AFFINITIES OF THE UNITED STATES STRIGES.

Regarding the Owls as a whole, the present writer considers them to be a group of nocturnal birds of markedly raptorial habits. Some of the species, however, are largely diurnal in their ways. They are not especially related to the *Accipitres*, but are, on the other hand, remotely allied with the *Caprimulgi*. What we now know of the structure of such forms as *Steatornis* and *Podargus* sufficiently indicate this much.

Taking the Owls in our own avifauna, they may readily be grouped into two well-marked families—the *Strygidae*, to contain *Strix*, and the *Bubonidae*, to contain all the other genera. *Strix pratincola* comes nearer the *Caprimulgi* than any other of our Strigine types. This is remotely suggested to us by the form of its sternum, the general aspect of the skull and a few minor points elsewhere in the skeleton. Of all the bubonine Owls we are inclined to think that *Asio wilsonianus* comes nearer *Strix* than any of the others. There is also doubtless an affinity among the genera *Surnia*, *Speotyto* and *Micropallas*. *Bubo* and *Nyctea* are strong types, with a great raptorial aspect in the cast of their skeletons, more especially in their beetle-browed skulls and their powerful raptorial feet.

Perhaps the asymmetry of the skull may also point to generic affinity, though it is a question; but if so, then *Syrnium*, *Surnium* and *Nyctala* may be considered more closely related among themselves than they are with any of the other genera.

Megascops approaches *Bubo*, and has a few characters, of light weight, in its skeleton that agree with the corresponding ones in *Speotyto*.

EXPLANATION OF PLATES.

[The figures in these Plates are all reproductions of photographs made direct from the specimens by the author, represented by material either in his own private collection or in the collections of the U. S. National Museum at Washington, D. C., U. S. A.]

PLATE X.

- FIG. 1. Basal view of the skull of a nestling Great Horned Owl (*Bubo virginianus*). Mandible articulated, but a number of the bones of vault of cranium and face removed. Maxillaries and maxillo-palatines somewhat displaced. Natural size. Specimen in the author's collection, and taken for him by Dr. W. S. Strode, of Bernadotte, Ill. The nestling was just quitting the nest.
- FIG. 2. Basal view of the skull of nestling *Bubo virginianus*. Belonged to the same clutch as the one in Fig. 1, and has the same history. Natural size and shows how these birds vary in the matter of proportions when hatched nearly at the same time. Figs. 1 and 2 show well the sutural lines at the base of the cranium.
- FIG. 3. Outer aspect of the right pelvic limb of the nestling *Bubo virginianus*. Natural size, and from the same specimen to which the skull shown in Fig. 2 belonged. This specimen exhibits very well the ossific centres and development of the epiphyses about upper part of the ankle-joint.
- FIG. 4. Palmar aspect of the right pectoral limb of the nestling *Bubo virginianus*. Natural size, and from the same specimen to which the skull shown in Fig. 2 belonged, as well as the pelvic limb in Fig. 3. The humerus and distal phalangeal digit are somewhat turned aside from their normal positions.

PLATE XI.

- FIG. 5. Right half, internal view of the skull of an adult specimen of the Great Horned Owl (*Bubo virginianus*). Natural size and showing comparative proportions of brain cavity, the amount of diploëic tissue and other structures. Mandible removed, but quadrate and pterygoid *in situ*. (Spec. No. 17139, Coll. U. S. Nat. Mus.)
- FIG. 6. Left half, internal view of the skull of *Bubo virginianus*. Natural size and from the same specimen as shown in Fig. 5.
- FIG. 7. Superior aspect of the skull of an adult specimen of the Great Horned Owl (*Bubo virginianus*). Natural size and the mandible removed. From an unnumbered specimen in the Collection of the U. S. National Museum.

PLATE XII.

- FIG. 8. Basal view of the skull of an adult specimen of the Snowy Owl (*Nyctea nyctea*). Natural size and with the mandible removed. (Spec. 18458 of the Coll. of the U. S. Nat. Mus.)
- FIG. 9. Dorsal aspect of the pelvis and three anterior caudal vertebræ of an adult specimen of the Hawk Owl (*Scotiapea cinerea lapponica*). Natural size and from a specimen in the author's private collection; it having been presented to him by Mr. Ernest Seton-Thompson, who collected it near Toronto, Canada, in May, 1890.
- FIG. 10. Left lateral view of the skull and mandible of an adult specimen of the Great Horned Owl (*Bubo virginianus*). Natural size and the same skull as shown in Pl. XI, Fig. 7.

FIG. 11. The ventral aspect of the sixth to the twelfth cervical vertebræ of an adult specimen of the Snowy Owl (*Nyctea nyctea*). Natural size and from the same specimen which furnished the skull shown in Fig. 8. (Coll. U. S. Nat. Mus., No. 18458.)

PLATE XIII.

FIG. 12. Basal aspect of the skull of an adult specimen of the Screech Owl (*Megascops asio*). Natural size, mandible removed, but with the circlets of sclerotics of the eyes left *in situ* in the orbits. When photographed the skull was slightly rotated to the left. (Spec. No. 18987 of the Coll. U. S. Nat. Mus.)

FIG. 13. Superior aspect of the skull of an adult specimen of *Pulsatrix torquata* from Nicaragua. Natural size and mandible removed, which latter is shown in Fig. 15. (Coll. U. S. Nat. Mus., No. 18350.)

FIG. 14. Superior aspect of the skull of an adult specimen of the American Hawk Owl (*Surnia ulula caparoch*). Natural size and mandible removed (in author's private collection).

FIG. 15. Superior aspect of the lower mandible of an adult specimen of *Pulsatrix torquata*. Natural size and from the same specimen which furnished the skull shown in Fig. 13.

FIG. 16. Left lateral view of the trunk skeleton, shoulder-girdle and the femora of a specimen of the Screech Owl (adult), *M. asio*. Natural size, and belonged to the same specimen which furnished the skull shown in Fig. 12. The os furcula is broken near its lower part.

PLATE XIV.

FIG. 17. Left lateral view of the entire skeleton of an adult specimen of the Elf Owl (*Micropallas whitneyi*). (Ligamentous preparation.) Very slightly reduced from a specimen in the author's collection, and presented to him by Mr. Herbert Brown, of Tucson, Arizona (May, 1890). The windpipe is broken and protrudes in front of the cervical vertebræ. The circlet of sclerotal plates are in the left orbit. This is the skeleton of one of the smallest of the existing species of Owls in the world.

FIG. 18. Superior aspect of the skull of an adult specimen of the Elf Owl (*Micropallas whitneyi*). Very slightly reduced and mandible not removed. Another specimen other than the one shown in Fig. 17, but with the same history.

FIG. 19. Left lateral aspect of the skull and mandible of an adult specimen of the Screech Owl (*Megascops asio*). Very slightly reduced and with the sclerotal plates of the left eye *in situ*. Same skull as shown in Plate XIII, Fig. 12.

FIG. 20. Anterior aspect of the sclerotal plates of the right eye of an adult specimen of the Great Horned Owl (*Bubo virginianus*). Very slightly reduced, and from the same skeleton to which the skull belonged shown in Plate XII, Fig. 10.

FIG. 21. Superior aspect of the skull of an adult specimen of the American Barn Owl (*Strix pratincola*). Very slightly reduced. Hyoid arches wired to the skull *in situ*, and this is seen through the left orbit. (Spec. No. 18196 of the Coll. U. S. Nat. Museum, and the same specimen as shown in Plate XV, Fig. 24. Mounted in the cases of the Osteological Department, and kindly loaned by Mr. F. A. Lucas.)

PLATE XV.

FIG. 22. Palmar aspect of the right humerus of an adult specimen of the American Long-eared Owl (*Asio wilsonianus*). Author's collection, and taken by him

at Fort Fetterman, Wyoming, U. S. A., in April, 1881. Natural size, and from the same skeleton to which the parts shown in Fig. 23 and Fig. 30 of Plate XVII belonged.

FIG. 23. Basal aspect of the skull of *Asio wilsonianus*. Natural size, mandible removed (see history in Fig. 22).

FIG. 24. Right lateral aspect of the skull of an adult specimen of the American Barn Owl (*Strix pratincola*). (History given under Plate XIV, Fig. 21, where the same skull is shown on superior view).

FIG. 25. Left lateral view of the trunk skeleton and left femur of the American Barn Owl (*Strix pratincola*). Natural size. Author's private collection, and taken near New Orleans, La. (1883).

PLATE XVI.

FIG. 26. Anconal aspect of the left carpo-metacarpus of the Snowy Owl (*Nyctea nyctea*). From same specimen which furnished the skull in Fig. 8 of Plate XII, and also the humerus and coracoid and scapula of the present plate (Figs. 28 and 29). Somewhat reduced.

FIG. 27. Ventral aspect of the sternum of the American Hawk Owl (*Scotiapex cinerea lapponica*). Somewhat reduced, and from the same skeleton which furnished the pelvis shown in Fig. 9 of Plate XII. A few of the costal ribs have remained attached.

FIG. 28. Palmar aspect of the left humerus of the Snowy Owl (*Nyctea nyctea*). Adult, somewhat reduced (see description of Fig. 26).

FIG. 29. Inner aspect of the left coracoid and scapula, normally articulated, of the Snowy Owl (*Nyctea nyctea*). Somewhat reduced (see descriptions of Figs. 26 and 28).

PLATE XVII.

FIG. 30. Left lateral aspect of the trunk skeleton of the American Long-eared Owl (*Asio wilsonianus*). Natural size, and from the same skeleton that furnished the skull and humerus shown in Figs. 22 and 23 of Plate XV, where the history of the specimen is recorded.

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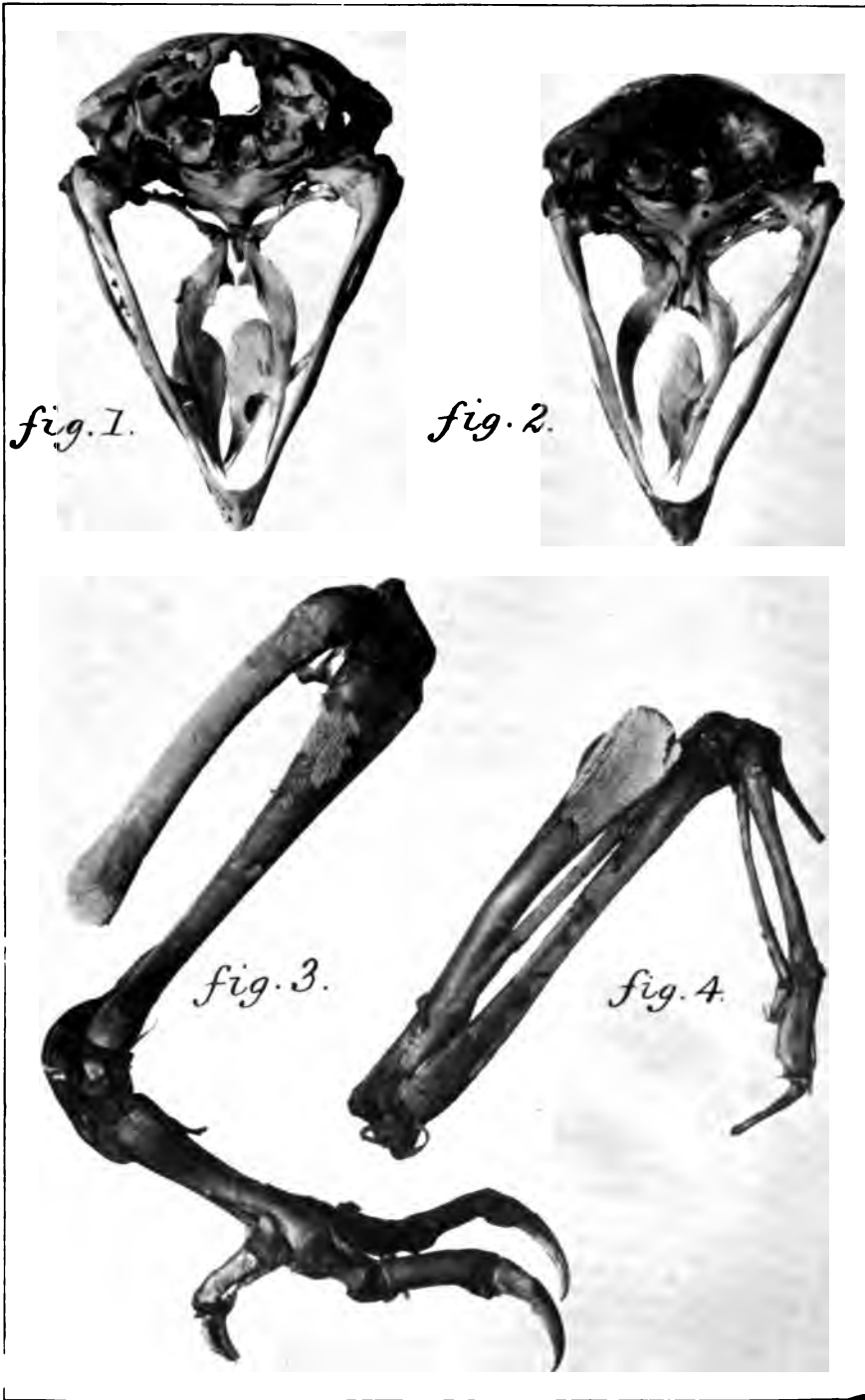
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Nominations for Officers and Councillors were made.

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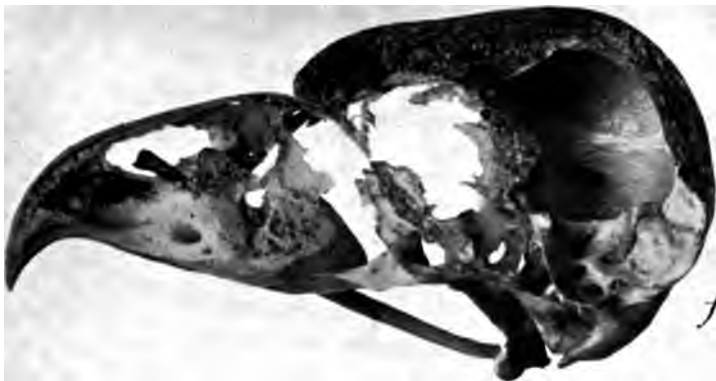


fig. 5.



fig. 6.



fig. 7.



fig. 8.



fig. 9.



fig. 10.



fig. 11.







fig. 12.



fig. 13.



fig. 14.



fig 15.



fig. 16.



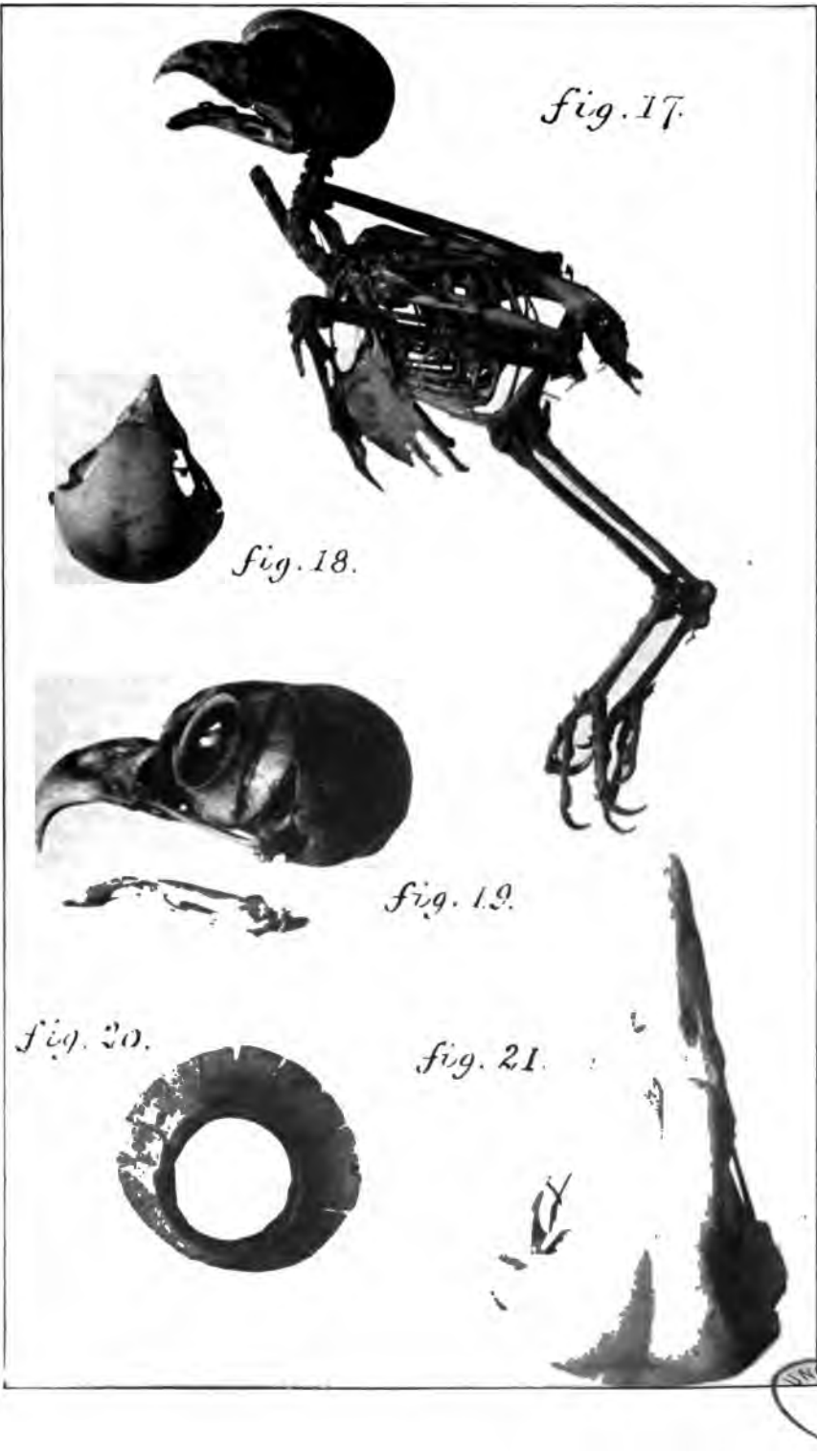




fig.22.



fig. 23.



fig. 24.

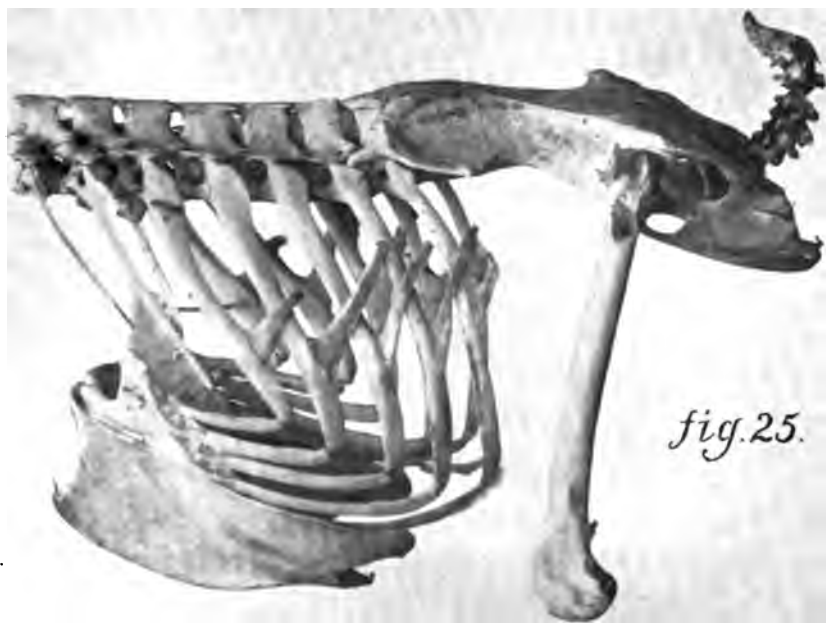


fig.25.

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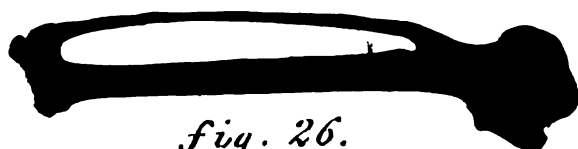


fig. 26.



fig. 28.



fig. 27.

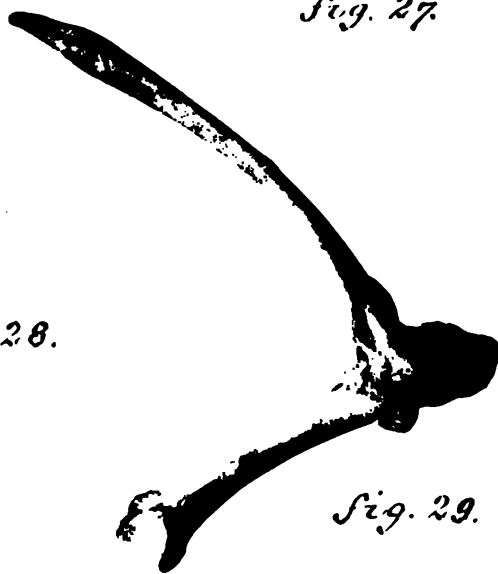


fig. 29.







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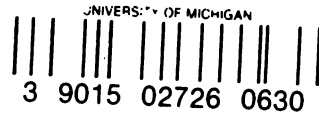
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